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THE ARCHITECTS' & BUILDERS' JOURNAL.

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A Weekly Journal for Architects Surveyors Builders and Constructional Engineers.

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TECHNICAL JOURNALS, LTD.,
27-29, TOTHILL ST., WESTMINSTER.

7 Nov 16
24 Oct 16

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VIII.—St. Margaret's Church, Ilford,
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X.—Premier Buildings, Liverpool (G.
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Cunard Building, Liverpool (Willink
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—Shop and Offices, Northumberland
reet, Newcastle-on-Tyne (Percy L.
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X.—New Building for Board of
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I.—Carvings in St. Hilda's Church,
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—Capital and Counties Bank, St.
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.—Chancel Screen, St. Crantock
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XVI.—London County and Westminster Bank, Hythe, Kent (Banister Fletcher and Sons, Architects), April 28.
XVII., XVIII.—Nos. 27-29, Tothill Street, Westminster (Richardson and Gill, Architects), May 5.
XIX., XX.—Premises of London Shoe Company, Nos. 116 and 117, New Bond Street, London (Interior Decoration by Andrew Russell), May 12.
XXI.—Upper Part of First-class Dining Saloon on s.s. "Lusitania" (James Miller, A.R.S.A., F.R.I.B.A., Architect), May 19.
XXII.—Martin's Bank, Lombard Street, London, E.C. (Ernest Newton, A.R.A., P.R.I.B.A., Architect), May 26.
XXIII—Houses for the Staff of H.H. the Maharajah of Indore (Sir Ernest George, A.R.A., F.R.I.B.A., and A. B. Yeates, F.R.I.B.A., Architects), May 26.
XXIV., XXV.—Competitive Designs for Replanning the Central Area of the City of Bradford, June 2.
XXVI.—New Government Building, Cathays Park, Cardiff; Detail of Main Entrance (R. J. Allison, A.R.I.B.A., Architect), June 9.
XXVII.—Ciro's Club, Orange Street, London, W.C.: The Dining Hall (Harold Goslett, F.R.I.B.A., Architect), June 23.
XXVIII.—Public Library, Clydebank, Glasgow (A. McInnes Gardner, I.A., and Robert White, Joint Architects), June 30.
XXIX.—Regent Palace Hotel, Piccadilly Circus, London: Plan of Heating and Ventilating Arrangements in sub-basement (Henry Tanner, F.R.I.B.A., F. J. Wills, and the late W. J. Ancell, Joint Architects), June 30.

DESIGNS BY DANIEL MAROT.

I.—Triumphal Arch, March 17.
II.—Triumphal Arch, March 24.
III.—A Ceiling, March 31.
IV.—Triumphal Arch, April 7.
V.—A Chimneypiece, April 14.
VI.—A Triumphal Arch, April 21.
VII.—Overdoor Panels, April 28.
VIII.—A Ceiling, May 5.
IX.—A Staircase, May 12.
X.—A Triumphal Arch, June 9.
XI.—A Chimneypiece, June 23.

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I.—House at Meudon, Paris (Guve, Architect), Jan. 20.
II.—Garden Pavilion at Versailles (Chalgrin, Architect), Jan. 27.
III.—Conservatory at House in Bois de Boulogne, Paris (Bellanger, Architect), Feb. 10.
IV., V.—Château de Meudon (Mander, Architect), March 3 and 17.
VI.—House of M. Motte at Mantes (Hoppe, Architect), March 24.
VII.—Château de Mareuil (Villetard, Architect), March 31.
VIII.—House at Terlinden (Lequeu, Architect), April 7.
IX.—Country House, near Marly, May 26.
X.—Country House at St. Germain (Loison, Architect), June 16.

DETAILS OF CRAFTSMANSHIP.

I.—"Burst" on Ceiling, Queen's College Library, Oxford, Jan. 6.
II.—Terra-cotta Panel, Westminster Cathedral, London (J. F. Bentley, Architect), Jan. 13.
III.—Carved Trophy, Sudbrook Park, Petersham (James Gibbs, Architect), Jan. 20.
IV.—Cast-iron Balusters, 5, Bloomsbury Square, London, Jan. 27.
V.—Carved Wood Capital, No. 9, Clifford Street, London. W, (Isaac Ware, Architect), Feb. 3.
VI.—Upper Part of Doorway in the Saloon, Boodle's Club, London (Robert Adam, Architect), Feb. 10.
VII.—Rostral Column, Place de la Concorde, Paris, Feb. 24.
VIII.—Upper Part of Chimneypiece in House on the Heerengracht, Amsterdam, March 3.
IX.—Bronze Mast Standard on Piazza of St. Mark's, Venice (Alessandra Leopardi), March 10.
X.—Stone Carving on Pavilion, Musée Galliera, Paris (Ginain, Architect), March 17.
XI.—Mantelpiece in Saloon, Boodle's Club, London (Robert Adam, Architect), March 24.
XII.—Doorway in Billiard Room, Automobile Club, London (Mewès and Davis and E. Keynes Purchase, F.R.I.B.A., Associated Architects), March 31.
XIII.—Bronze Enrichment to Door of Louis XVI. Encoignure in Wallace Collection, April 7.
XIV.—French Fireback in Wallace Collection, London, April 21.
XV.—Enrichment of Wood Chimneypiece from No. 3, Clifford's Inn, now in the Victoria and Albert Museum, South Kensington, April 28.

XVI.—Corner of Reading Room Ceiling, Nos. 27-29, Tothill Street, Westminster (Richardson and Gill, Architects), May 5.
XVII.—Carved Wood Mirror in Victoria and Albert Museum, South Kensington, ascribed to William Kent, May 12.
XVIII.—Royal Arms of Queen Anne, Carved in Walnut, Gilt, May 19.
XIX.—Panel of Carved Limewood in Shutter: Louis XVI. Period, May 26.
XX.—Carved Pine Overmantel from No. 5, Great George Street, Westminster, June 2.
XXI.—Group of Balusters in Victoria and Albert Museum, South Kensington, June 9.
XXII.—Carved Wood Shield of Arms of the Corporation of the Trinity House, June 16.
XXIII.—Metal Enrichments to Eighteenth-Century French Table in the Wallace Collection, June 23.
XXIV.—Carved Oak Panel of Staircase (English, late Seventeenth Century) in the Victoria and Albert Museum, South Kensington, June 30.

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I.—Detail from the Breast-Plate on the Statue of an Emperor at Rome, Feb. 17.
II.—Carved Marble Panels, Feb. 24.
III.—Details of Marble Friezes at Rome, March 3.
IV.—Marble Console in the Vatican Museum, March 10.
V.—Fragment of Marble Cornice from Villa Barberini, near Rome, March 17.
VI.—Entablature from Temple of Antoninus and Faustina, Rome, March 24.
VII.—Running Ornament, March 31.
VIII.—Antique Fasces from Bas-Reliefs at Rome, April 14.
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II.—April 28.
III.—May 12.
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V.—The Pitti: Detail of Window and Fountain (Bartolommeo Ammannati, Architect), Jan. 6
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VII.—Palazzo Nonfinito: The Courtyard (Bernardo Buontalenti, Architect), Jan. 20.
VIII.—Palazzo Bartolini - Salimbeni (Baccio di Agnolo, Architect), Jan. 27.
IX.—Palazzo Larderell (G. Antonio Dosio, Architect), Feb. 10.
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XI.—Window, No. 10, Via Deservi, Feb. 24.

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II.—Cambacérès Monument, Père Lachaise, Paris, Jan. 27.
III.—Six Monuments in Cemeteries of Paris, Feb. 3.
IV.—Masséna Monument in Cemetery of Père Lachaise, Paris (Méry Vincent, Architect), Feb. 10.
V.—Frochot Monument, Père Lachaise, Paris (Goode, Architect), Feb. 24.
VI.—Suchet Monument in Cemetery of Père Lachaise, Paris, March 3.
VII.—Boode Monument in the Cemetery of Père Lachaise, Paris (Santy, Architect), March 10.
VIII.—Three Monuments by Schwind, March 17.
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X.—Monument in Expiatory Chapel, Auray (Caristie, Architect), Mar. 31.
XI.—Details of Monument in Expiatory Chapel, Auray (Caristie, Architect), April 7.
XII.—Lefèbvre Monument in Cemetery of Père Lachaise, Paris, April 14.
XIII.—Lefèbvre Monument in Cemetery of Père Lachaise, Paris, April 21.
XIV.—Three Monuments in the Cemetery of Père Lachaise, Paris, April 28.
XV.—Mausoleum in Park of Château de Grandveaux (Lecointe, Architect), May 5.
XVI.—Four Tombstones in Paris Cemeteries, May 12.
XVII.—Tombs in the Cemetery of Père Lachaise, Paris (Blanchon and Cecile and Grillon, Architects), May 19.
XVIII., XIX.—Perregaux Monument in Cemetery of Père Lachaise, Paris, May 26 and June 2.
XX.—Michelet Monument in the Cemetery of Père Lachaise (Pascal, Architect), June 9.

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XIII.—Pencil Studies for Missouri State Capitol, Jefferson City (Tracy and Swartwout, Architects), Jan. 6.
XIV.—Tower of Jewels, Panama-Pacific Exposition, San Francisco (Thomas Hastings, Architect), Feb. 24.
XV.—Carnegie Public Library, Sharon, Mass. (C. Howard Walker, Architect), March 17.
XVI.—McKinley Birthplace Memorial at Niles, Ohio (McKim, Mead, and White, Architects), March 24.
XVII.—House at Sharon, Connecticut (Mann and Macneille, Architects), June 23.

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I.—No. 1, Dean Trench Street, Westminster (H. S. Goodhart-Rendel, Architect), Jan. 13.
II.—Wythes House, Bickley, Kent (C. H. B. Quennell, F.R.I.B.A., Architect), Jan. 20.
III.—New Wing, Madingley Hall, near Cambridge (Gotch and Saunders Architects), Jan. 27.
IIIA.—"Dalbeathie," Dunkeld, Perthshire (Mills and Shepherd, FF.R.I.B.A., Architects), Feb. 10.
IV.—Design for a Town Residence for Two Artists (Patrick Abercrombie, M.A., Architect), March 3.
V.—House at Morriston, Swansea (J. C. G. Davies, Architect), March 10.
VI.—"Räthen," Hindhead, Surrey (Henry A. Saul, A.R.I.B.A., Architect), March 31.
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X., XI.—Cottages at East Clandon, Surrey (H. S. Goodhart-Rendel, Architect), April 14.
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XIII.—Additions to the Lodge, Eynsham, Oxon. (Clough Williams-Ellis, Architect), May 19.
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XV. and XVI.—"Storey's End," Cambridge (A. H. Moberly, M.A., A.R.I.B.A., Architect), June 30.

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XXXVIII.—School of Medicine, St. Bartholomew's Hospital, Giltspur Street, London (Edward I'Anson, Architect), Jan. 13.
XXXIX.—Chambre des Députés, Paris, Library (Jules de Joy, Architect), Jan. 13.
XL.—Church of San Francesco di Paola, Naples (Pietro Bianchi, Architect), Feb. 3.

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(XVII.)—House at Kennington Oval, London, S.E. (Now Demolished), April 14.
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XXXIX.—Houses on Ham Common, Surrey, Jan. 27.
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XLI.—Composition from St. George's Hall, Liverpool, by H. Chalton Bradshaw, March 24.
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XLIII. and XLIV.—Design for Monument to Lord Roberts, by Alfred B. B. Jopling, June 2.
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II.—Inscription on Marble Tomb in S. Trinita, Florence, by Luca Della Robbia, May 26.
III.—Inscription on Pulpit Staircase i Siena Cathedral, dated 1543, by Bernardino di Giacomo, June 9.
IV.—Inscription on Stone Tablet in Choir of Como Cathedral, dated 1513 June 16.
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II.—New School of Architecture, Liverpool (Professor C. H. Reilly, M.A. F.R.I.B.A., Architect), Feb. 3.
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IV.—Capital and Counties Bank, St Albans (E. Brantwood Maufe, B.A. A.R.I.B.A., Architect), March 10.
V.—Entrance Doorway to House o Long Island, New York (Albro an Lindberg, Architects), April 21.
VI.—Nos. 27-29, Tothill Street, Westminster (Richardson and Gill, Architects), May 5.
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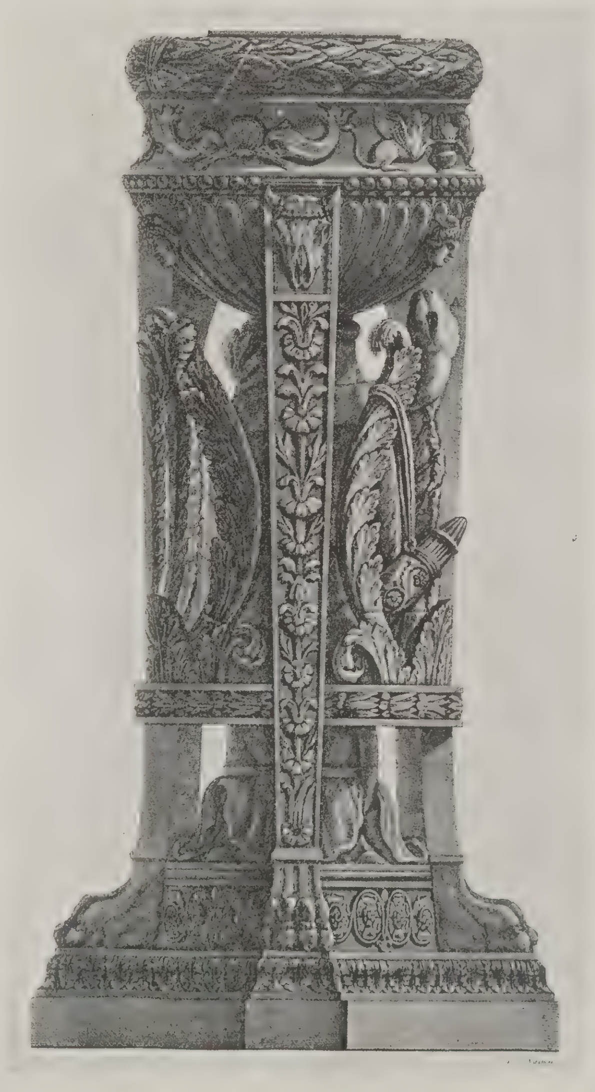
Printed by THE ARGUS PRINTING CO., LTD., Temple Avenue and Tudor Street, London, E.C.

TECHNICAL JOURNALS LIMITED

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, January 6, 1915. Volume XLI. No. 1044.

No. 117.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 6, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1044.

EDITORIAL.

SIR EDWARD POYNTER, President of the Royal Academy, draws attention to the special character of the exhibition which opens this week at Burlington House in lieu of the usual winter exhibition. It consists in the main of works in painting and sculpture and in black-and-white by living artists of the British School, but galleries are reserved for works of Belgian painting and sculpture. By the sale of the British works it is hoped to raise a fund to be divided equally among the Red Cross Society, the St. John Ambulance Society, the Artists' General Benevolent Institution, and the artists whose works are sold, who will receive one-third of the marked prices.

* * * *

The exhibition has been arranged by a committee comprising the presidents of the principal artistic societies in London and five members of the council of the Royal Academy, each of the presidents having invited the members of his society to contribute. There has been an excellent response, some 800 works being exhibited. M. Paul Lambotte, Directeur des Beaux-Arts at Brussels, is assisting in the arrangement of the Belgian works of which, owing to the difficulties of importation, the exhibition will open a week or so later than that of the British works, and the proceeds are to be devoted to the relief of Belgian artists. As these are hard times for artists, Sir Edward's hope that picture-buyers and visitors will make the exhibition highly successful in the commercial sense will find a ready echo.

* * * *

In approving, last week, of the scheme for making Nottingham a port by widening and deepening the Trent, the corporation of that fine city set a notable example of enterprise. It may be doubted, however, whether the sum of £150,000 allotted for the work is at all adequate for so ambitious a scheme, but, a beginning having been made, the scheme may develop to a magnitude that is as yet impossible to define. In its length of 180 miles, the Trent flows through four counties—Staffordshire, Derbyshire, Nottinghamshire, and Lincolnshire—and is navigable up to Burton, which is 105 miles from its mouth in the Humber. Other towns standing on its banks—Stoke, Newark, and Gainsborough—may possibly see some advantage in contributing towards the extension of a scheme that may have far-reaching consequences through its example as well as in its materialisation.

* * * *

Railway traction has caused our waterways to be unduly neglected, but it may yet be found that the latter have "potentialities of wealth beyond the dreams of avarice." Once the strange disposition to leave them in their natural state is overcome, the country may yet see a broadening, straightening, deepening, and connecting of its rivers and canals that will play an important part in commerce and considerably modify present ideas with respect to the traffic problem. To look no further ahead, however, than Nottingham's modest start, that in itself is an incentive to London to take more interest in the Thames, which is surely the most shamefully neglected river in Europe. It need not be added that this is not purely and simply a matter of engineering. Waterways that are widened and aggrandised will demand nobler buildings upon their banks, to say nothing of more and bigger bridges.

* * * *

That artificial waterways, connecting the natural streams, or completing a system, need not be ugly in themselves, nor the cause of ugliness in the buildings near them, let Venice and Holland attest. Nor could it be urged against canals that they are an innovation. They are, indeed, of very respectable antiquity. Herodotus, Aristotle, and Pliny record their existence in Egypt before the Christian era; and Greece, Italy, Spain, Sweden, Holland, and France, began to dig canals almost before they began to build churches.

* * * *

In or about the Nottingham district there must exist what might almost be called a venerable tradition of canals; for the Caer Dyke and Foss Dyke cuts in Lincolnshire were doubtless of Roman origin; and let it be noted that the former extended from Peterborough to the River Witham, near the city of Lincoln, while the latter still stretches from Lincoln to the river Trent. Caer Dyke is now only a name, but the Foss Dyke still exists as the oldest British canal. Camden was unable to make up his mind whether the Romans, in forming it, intended water-supply or drainage, although it seems clear that they had in view the two-fold object. Rendered to some extent navigable in 1121, it was widened and deepened, and as far as possible assimilated to the navigable channel of the Witham in 1840, and now forms an important connection between the Trent and the Witham. Canal-locks are a comparatively late device, and it cannot be definitively ascertained by whom or when or where they were invented. Some credit them to the Dutch, others to the Italians. They reached full efficiency by such slow gradations that the successive steps of the contributors were unnoted; but that universal genius, Leonardo da Vinci, is greatly fancied as the author of some master-stroke that established for all time the basic principles. If the Nottingham enterprise should chance to revive a practical interest in waterways, there should ensue much activity in the drainage and reclamation of broads, marshes, and bogs in this country as well as abroad; and these are possibilities that the wide-casting town-planner will not exclude from his purview.

Architecture

Nottingham's waterways would carry other merhandise besides lace; for the district is, or was, rather elebrated for its peculiar materials and methods of rickmaking. In the district there is a very hard marl vhich would not become sufficiently plastic by means f the ordinary methods of weathering and tempering, nd had to be ground between rollers. Then the clay vas kept in damp cellars for a year or more to ripen, nd the bricks were moulded in a brass form called a copper mould." Excellent bricks they were; nor is he Nottingham district the only place where, in spite f the extensive use of ingenious machinery, the aking of bricks by hand still lingers. Even in the utskirts of London, one may still admire the speed nd dexterity of the hand-moulder.

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Not to feel interested in what American architects re debating in their counsels would argue in us an sularity—nay, a parochialism—which of late years e have prided ourselves on having outgrown. We are osmopolitan now, talk at large about "the Archiecture of Humanity," and welcome the news from broad that formerly we were wont to disdain as being o concern of ours. Consequently, some reference to e transactions at the forty-eighth annual convention f the American Institute of Architects, held at Vashington last month, becomes almost a duty; but e are compelled to make it brief.

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A minor point that is worth notice is that at this nvention was adopted for the first time a practice that our insular ignorance we had thought to be universal -namely, that of printing and circulating the reports efore they were read. "At previous conventions," e are told, "the members were first acquainted with e substance of these reports through hearing them ad by the chairmen of the various committees. This forded but scant opportunities for thorough underanding of the subjects presented, and it has eretofore been the custom to refer each report to a b-committee for consideration, after what was often t a desultory discussion by the convention." It is sy enough to misunderstand, either wilfully or nocently, a report of which the words are in cold int under the eye and can be pondered and tested; t when a perhaps not very delicate ear is strained catch the accents of a mumbling and slurring voice, horough understanding of the subjects presented" uld be little short of miraculous.

* * * *

But it must not be overlooked that American chitects—judging from the specimens to whom we ve had the pleasure of listening in this country— eak and read more distinctly, and with an altogether eater regard for audibility—to say nothing of cutionary force and grace—than do, as a rule, those our own country who address meetings. Some few cellent speakers we have, it is true, but the majority e execrable—in their manner of delivery, that is: not their matter, which, at the R.I.B.A. and the A.A., for stance, reaches a high general level of excellence. ith some few men this disqualification is no doubt tive and ineradicable. Others could do very much tter if they tried; but they will not try, lest radventure they might be thought to be giving emselves airs. At the back of their minds there is an cipient idea that to speak well in public is rather d form. And so we foster a bad tradition, whereas Americans cultivate a good one; and if we somees overdo it at one end of the pole, so do they at the er. All the talk about "brightening" our archictural meetings would have been superfluous if aders and speakers were a little less afraid of cutionary effect. They need not be so prodigiously rmed about it. Elocution is a most difficult art, and of most architects it may be said with confidence that years of painstaking study would not bring them under suspicion of it.

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One of the subjects to which reference is made in the report by the American Institute's Committee on Government Architecture is the hope that had been expressed by a former convention that the American Government would take steps to form a Department of Fine Arts. That the hope has not fructified is attributed to "the Mexican situation, the financial problems and the European war, the establishment of the National Reserve Banks, and the vast labours imposed on the Treasury Department"; but nevertheless the committee expresses "strong hopes that during the coming [i.e., the present] year relations may be established between the Government and the Institute that will tend to an agreement on legislation that will place the subject of Government architecture on a more satisfactory basis."

* * * *

Evidently our American friends are suffering—it is hoped to a minor degree only—from the absurdity of entrusting the direction of Government architecture and monuments to the supervision—or perhaps "oversight" is the better word, from its happy ambiguousness—of mere politicians, who naturally are governed more by exigency and expediency than by regard for art. Not to cite more recent or more flagrant examples of the many monuments to this one-sided compromise, consider how Street was baulked and thwarted about his Law Courts, and to how diminished an extent the Houses of Parliament embody the conceptions of Barry. Let it be granted that in such large undertakings an architect is the better for advice and control—a proposition that is debatable, unless the guidance is sought by the architect himself from quarters whence he would willingly receive it, reserving the right to accept or reject it; for in the case of purely political and official control there is almost invariably a deadly dynamic tendency to ruin the design rather than to improve it.

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To accentuate this difference—to substitute artistic for political control—is apparently the object of the American Institute of Architects in approaching the Government. Whether a Department of Fine Arts would follow the usual course of being at first meddlesome and autocratic, afterwards settling down into otiose nullity, depends on its constitution and on the vigilance with which it is watched and criticised, as well as upon the character, even more than upon the volume, of the criticism; for ignorant criticism is that which finds most free and frequent expression, and the public body which is constantly subjected to it is often driven into ill-advised action or prohibition. The suggestion of closer relations between the Institute and the Government seems to hold out a ray of hope, always supposing that a purely platonic regard for art would be the dominating factor in them—that, in plain English, wire-pulling and cliquism could be eliminated.

* * * *

An interim report of immense practical value presented to the convention was that of the Committee on a Basic Building Code, who have examined and compared the provisions of the codes in force in leading cities. Similar professional attention to our own chaotic building by-laws should result in something better than the model by-laws issued by the Local Government Board, whose work in this direction we have no wish to disparage in characterising it as inadequate to present conditions. But the report that is of most interest on this side of the Atlantic is that in which the Committee on Legislation state their opinion that architects should be licensed; but "that unless existing laws are not improved in certain particulars, and a constant eye kept on their workings, there are many reasons why they might eventually become a check to architecture." Stress is laid on that larger outlook—beyond professional interest and advantage—which should be the redemption of our own charter or registration projects: "We believe," the reporters affirm, "that any licence law that is not primarily for the good of the public at large is not good for architects, and would be a boomerang to our profession." Yet an insistence on this view is mischievous in so far as it leads the public to believe that "an architect's principal duties are along structural and sanitary lines"—that the art of architecture is negligible.

HERE AND THERE.

It behoves me, on this first issue of a new year, to start appropriately with an assault on the enemy. Here I am in good company with a Royal Academician, Sir T. G. Jackson to boot, and I will first make use of his own averment. What, he asks, have the Germans done in the realm of the Fine Arts to warrant all this claim of "kultur"? In music, without doubt, they have gained the predominant place, as the names of Wagner, Bach, Beethoven, Weber Schumann serve to remind us. But in the rest of the field they occupy a very inferior position. Germany, says Sir Thomas, has produced but two really great painters, both of them, be it remarked, South Germans; no great sculptor, the admirable metalwork of Peter Vischer being all on a small scale; their Gothic architecture was borrowed from the French and spoiled; and their Renaissance work, when not verging on the grotesque, is commonplace. "The best architecture in Germany is their Romanesque work, which was borrowed from Lombardy. It is wanting in the finer graces, often clumsy and ill-proportioned, sometimes as in the western towers at Laach, quite ugly; but it has a sturdy, virile character which is commendable. Their Gothic was adopted from France, and rather late, not a natural growth. Cologne Cathedral is based upon Amiens, of which it reproduces and exaggerates the weak points. Like most German work, it is afflicted with megalomania. It has the double aisles to the nave which the French had wisely given up at Chartres, Reims, and Amiens, and the outside is so smothered in flying buttresses that the apse can hardly be seen. The proportion is too short, and this spoils the inside, which is otherwise beautiful; but outside the transepts, with their double aisles, seem jammed up against the towers. Of the modern work at the west end the less said the better. The truth is, the Germans are not a creative people, and therefore only in an inferior degree artistic. They are like the Saracens of Spain, Sicily, and South Italy, of whom it was said that they gave birth to no original idea of value, but by patient study and diligent research they developed and enriched the discoveries of others. . . . What they are capable of at the present day may be judged by the monstrous pair of steeples at Cologne Cathedral, and the hideous monumental structure that vulgarises the meeting of two beautiful rivers at Coblentz."

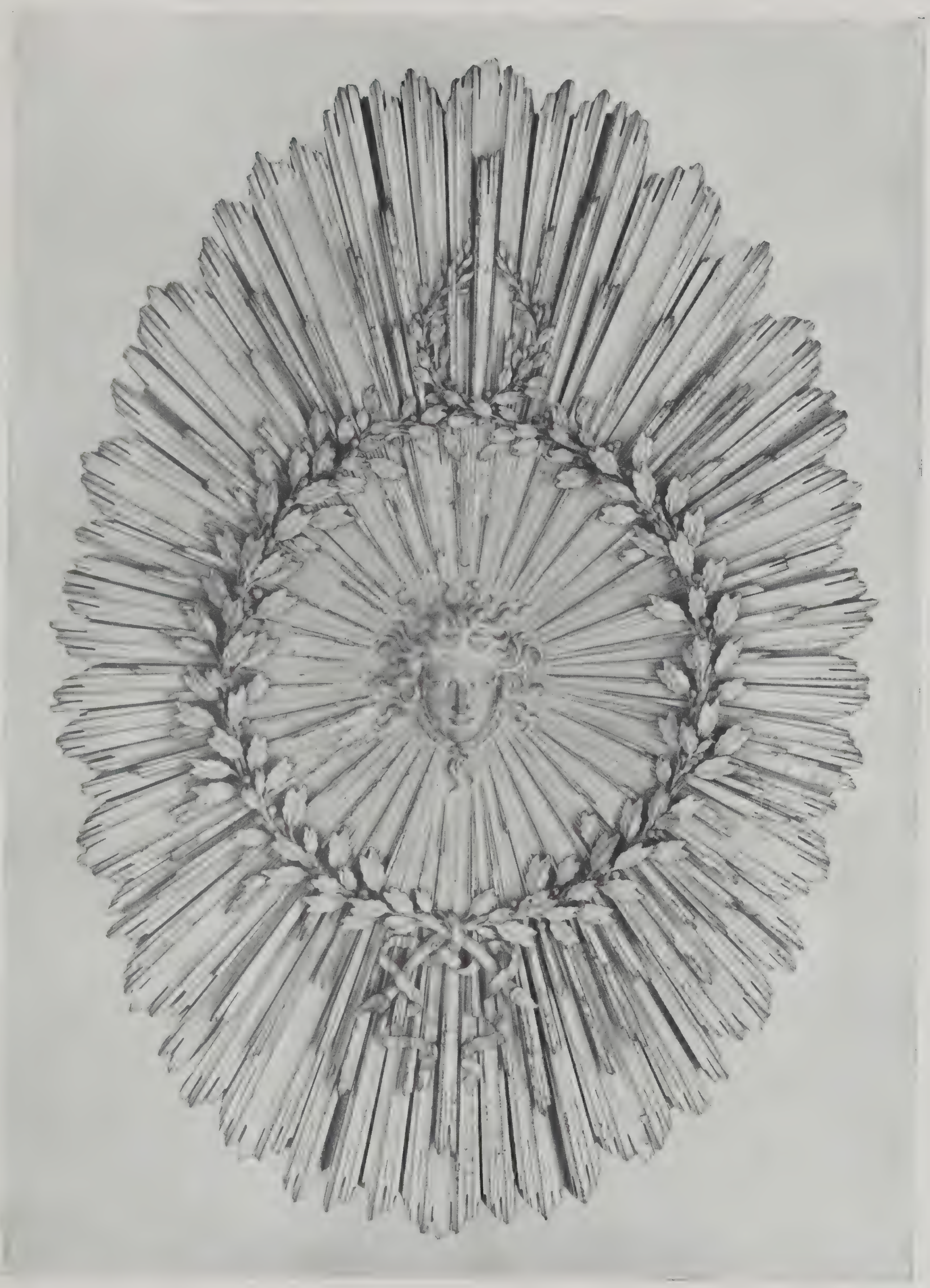
* * * *

It is at this last point that I wish to take up the matter. The monument to which Sir T. G. Jackson refers is one of those many war memorials, "mastodons of masonry," which it has been the delight of Germany to build during the last decade or so, expressive of the victories of the past, and suggestive of the continuing might of Germany. And most staggering of them all is the War Memorial at Leipzig. Some illustrations of this monstrosity, typical, in its brutal domination, of the underlying spirit of modern Germany, were given in last week's issue of this Journal. I would draw attention to the thoughts which are engendered by a comparison between the architectural expression of military power and glory as embodied in the War Memorial at Leipzig and the architectural expression of the same qualities in the great Tomb of Napoleon, serenely placed under the dome of the Invalides. There is a plate of this latter in the present issue, and from it we may see that the treatment of the interior of the German memorial is a travesty of Visconti's design. In each there is a great circular space with guardian figures around. In the French example these are Victories by that great sculptor Pradier, colossal figures, in scale with the rest of the design, but imbued with grace, like everything else in this most impressive scheme. Let the reader now turn to the German example. Guardian figures, too, are here, but they are sombre figures, forbidding soldiers with great swords, each pair standing against a huge face—giving the impression not of the mystery of Death nor of the glorious heroism of Life, but of nightmarish ideas—distorted, ghoulish, brutal. And they are typical of the driving spirit of modern Germany, which is, if one may so express it, the glorification of brute strength, the all-powerfulness of the male. In architecture it finds expression in a type of work which seeks above all else to overpower the beholder, to be virilely modern: and so the German has gone forth seeking strength in the monolithic vastness of Egypt, in the tremendous ruins of Baalbec, in the temples of archaic Greece, and borrowing from these and from Byzantine, French, and other architecture he has produced a result which is his own—and nothing less than appalling. It is an old axiom that there is worth in everything if only we will seek diligently and sympathetically for it, and I suppose therefore that smothered over by these repelling German conceits are qualities that merit attention if not admiration: but all I am able to discern in modern German architecture is the expression of masculine power wielded ruthlessly over everything within its range, a power acclaimed by Treitschke and Bernhardi as the greatest thing to achieve and to use, a power unassociated with the elements of grace, serenity, pleasurableness, a power indeed that cannot assimilate these qualities, but can only affright the senses by its disregard for the finer feelings of humanity.

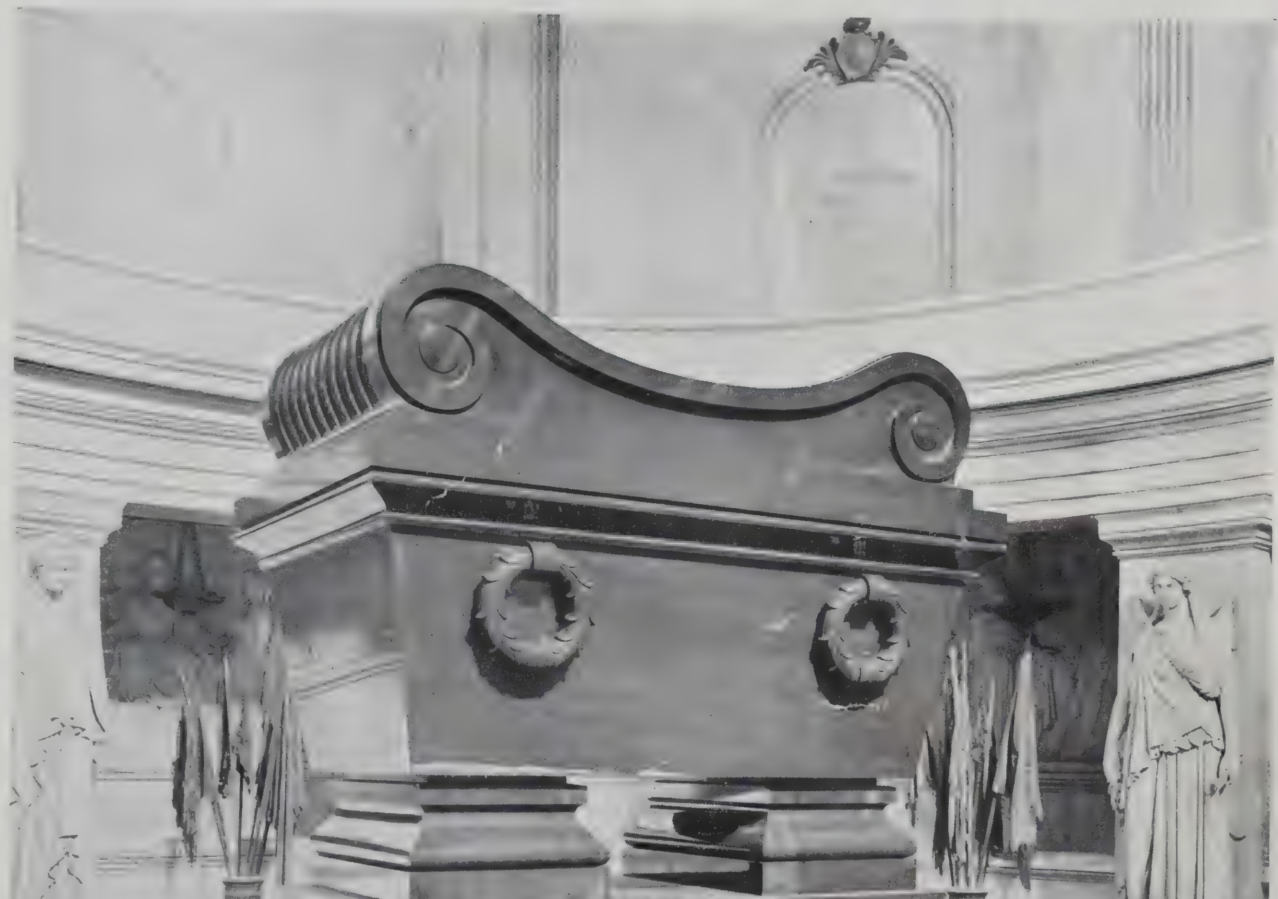
* * * *

The War, we are told, will sweep away much that we have been familiar with, the dross in architecture as in other things. And soon I suppose the enthusiast will be busy picturing in the mind's eye the rise of a new style, that long-talked-of style of the twentieth century which has hitherto had to be content with reinforced concrete grain silos and garden suburb houses. Already we perceive the shaping of habitations in a new fashion, dictated by the surrounding conditions. In the history books there are chapters on military architecture, and if memory serves me aright there were giant constructors in the old days, the Norman barons in their crenellated castles with walls five feet thick, the Sanmichelis engrossed with masonry fortifications cunningly devised. And in these latter days we have heard of the concrete *glacis*, with steel joists embedded within, and all manner of similar military defences. But the great guns have put an end to them, and military architecture has turned instead to the arts of the beaver and the mole. I like that inscription on the Belgian soldier's trench-home—"Palais des Glaces: Troglodytes of the First Line." The photographer at "the Front" has shown us the brave fellows in their cave dwellings. Here surely is the genesis of the architecture of the future, an architecture suited to that People of the Underworld whom the imaginative novelist has foretold.

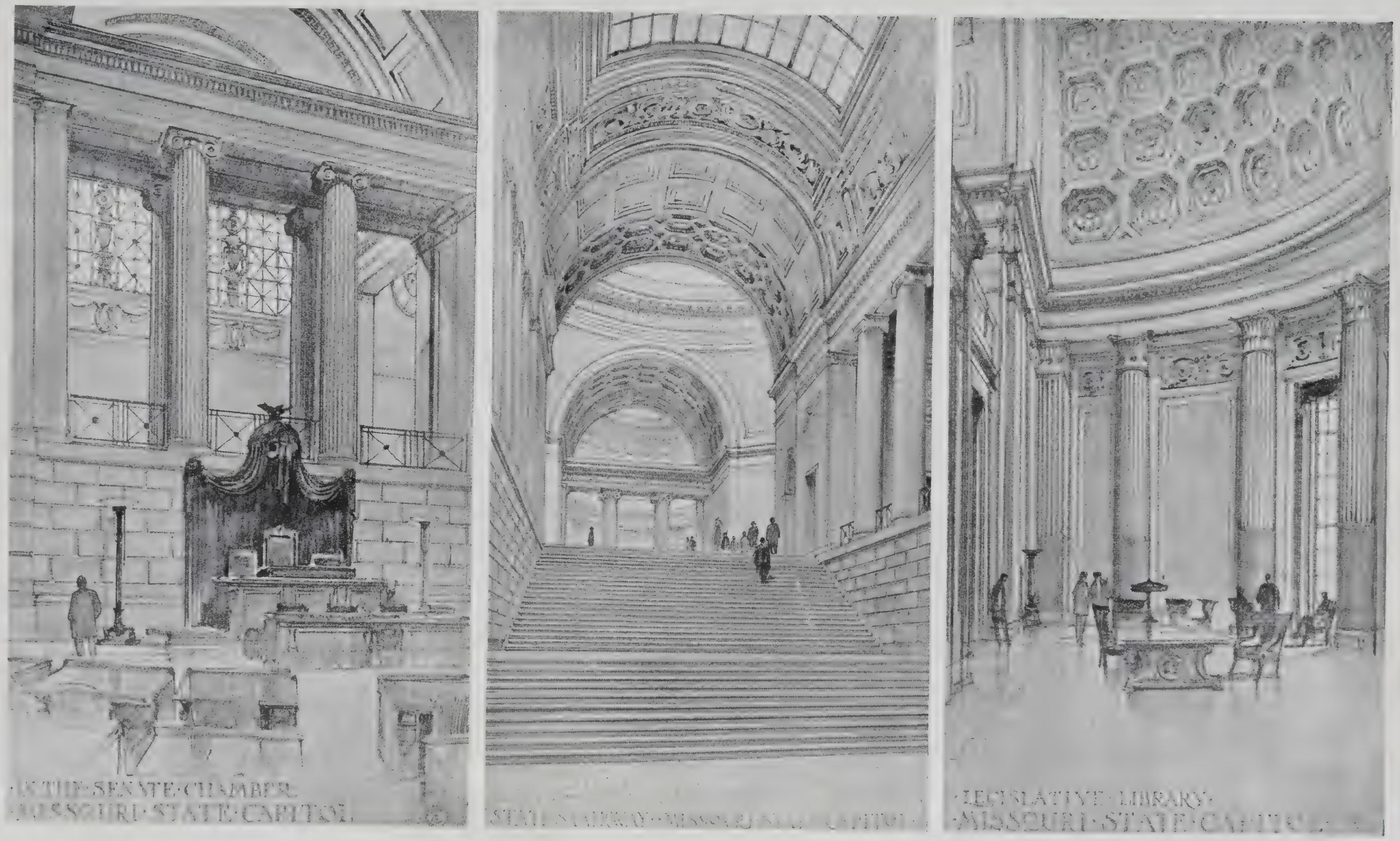
UBIQUE.



DETAILS OF CRAFTSMANSHIP. I.—"BURST" ON CEILING, QUEEN'S COLLEGE LIBRARY, OXFORD.

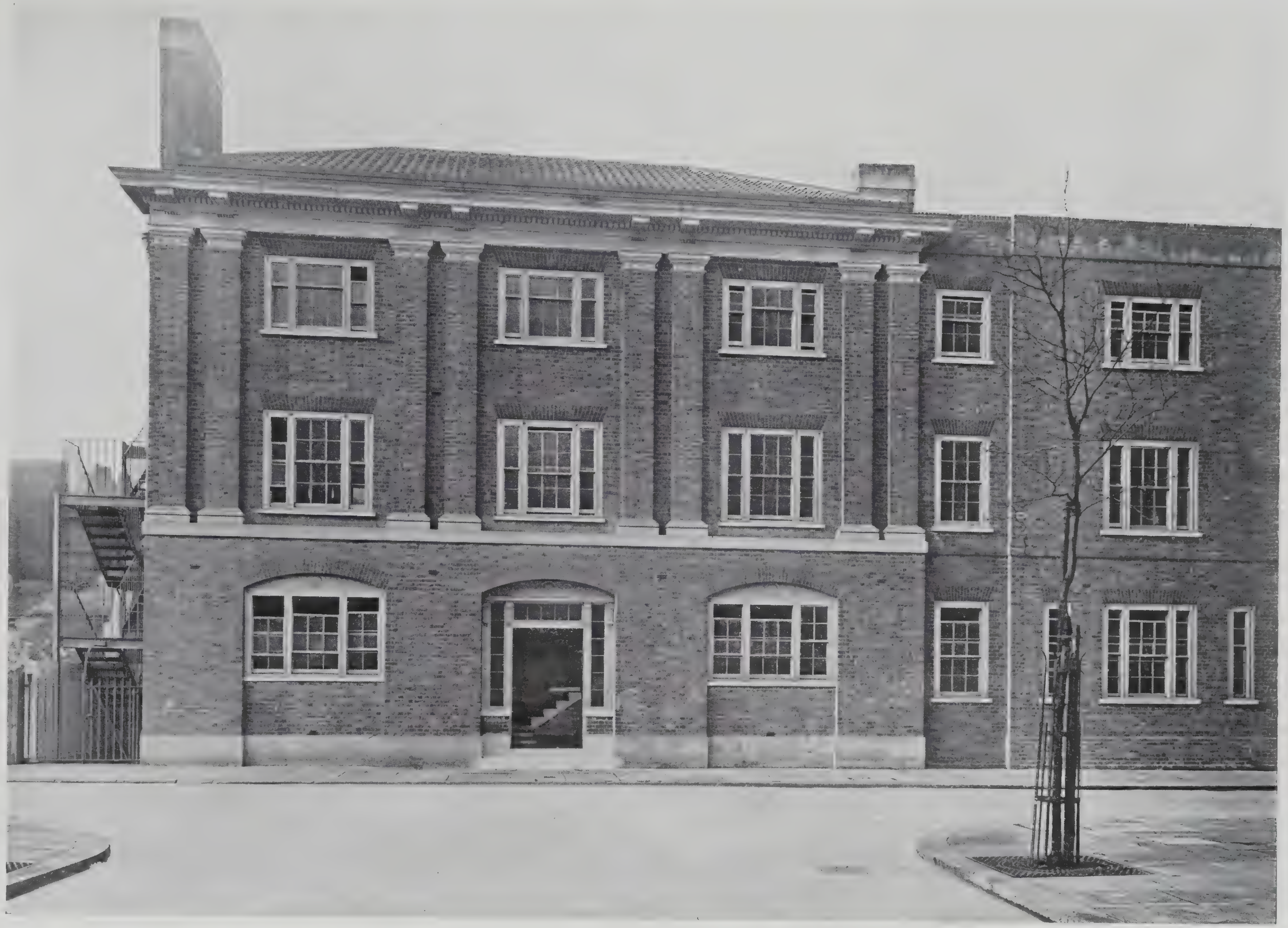


MONUMENTAL ARCHITECTURE. XXXVII.—TOMB OF NAPOLEON, PARIS.
L. T. J. VISCONTI, ARCHITECT.

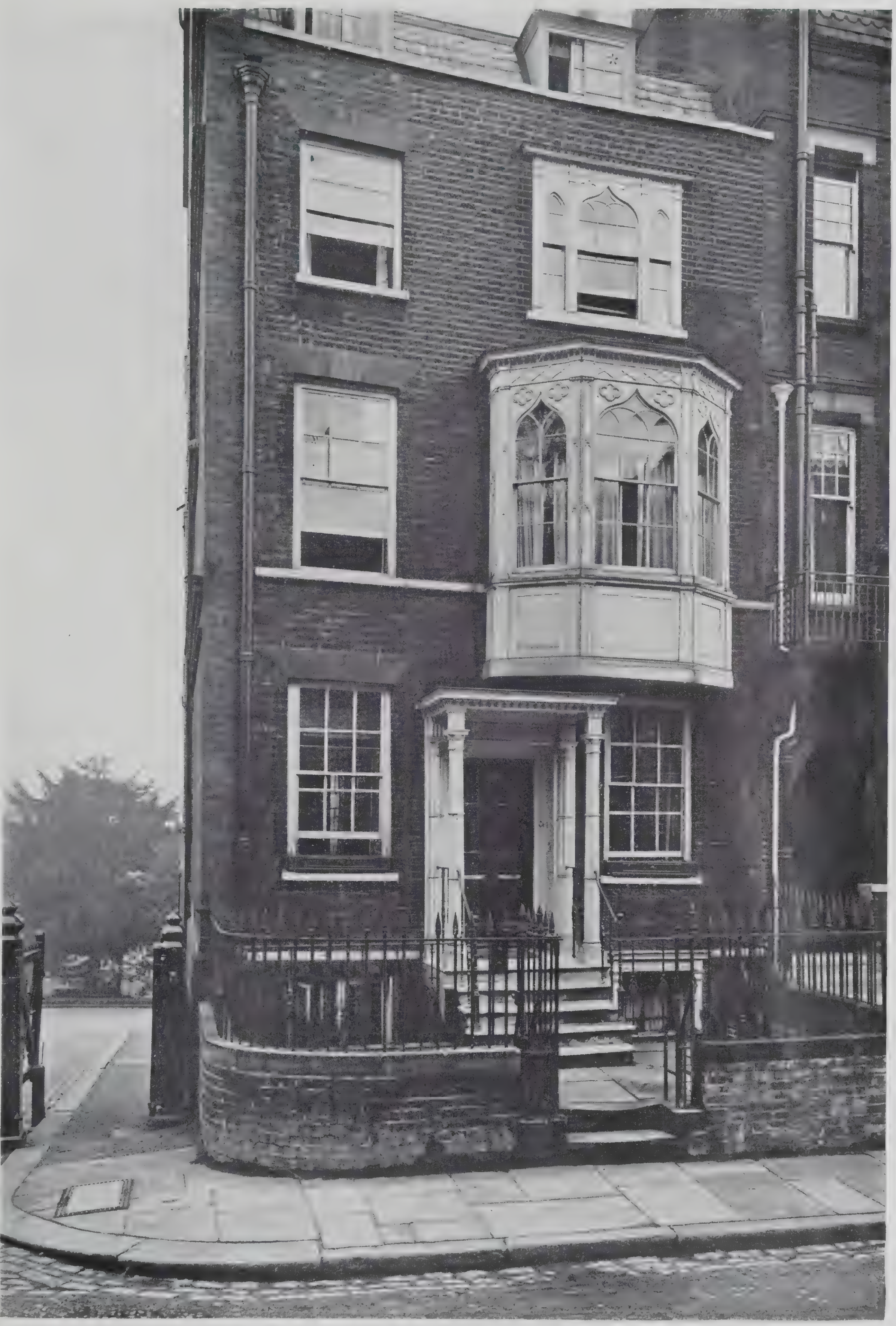


MODERN AMERICAN ARCHITECTURE. XIII.—PENCIL STUDIES FOR MISSOURI STATE CAPITOL, JEFFERSON CITY

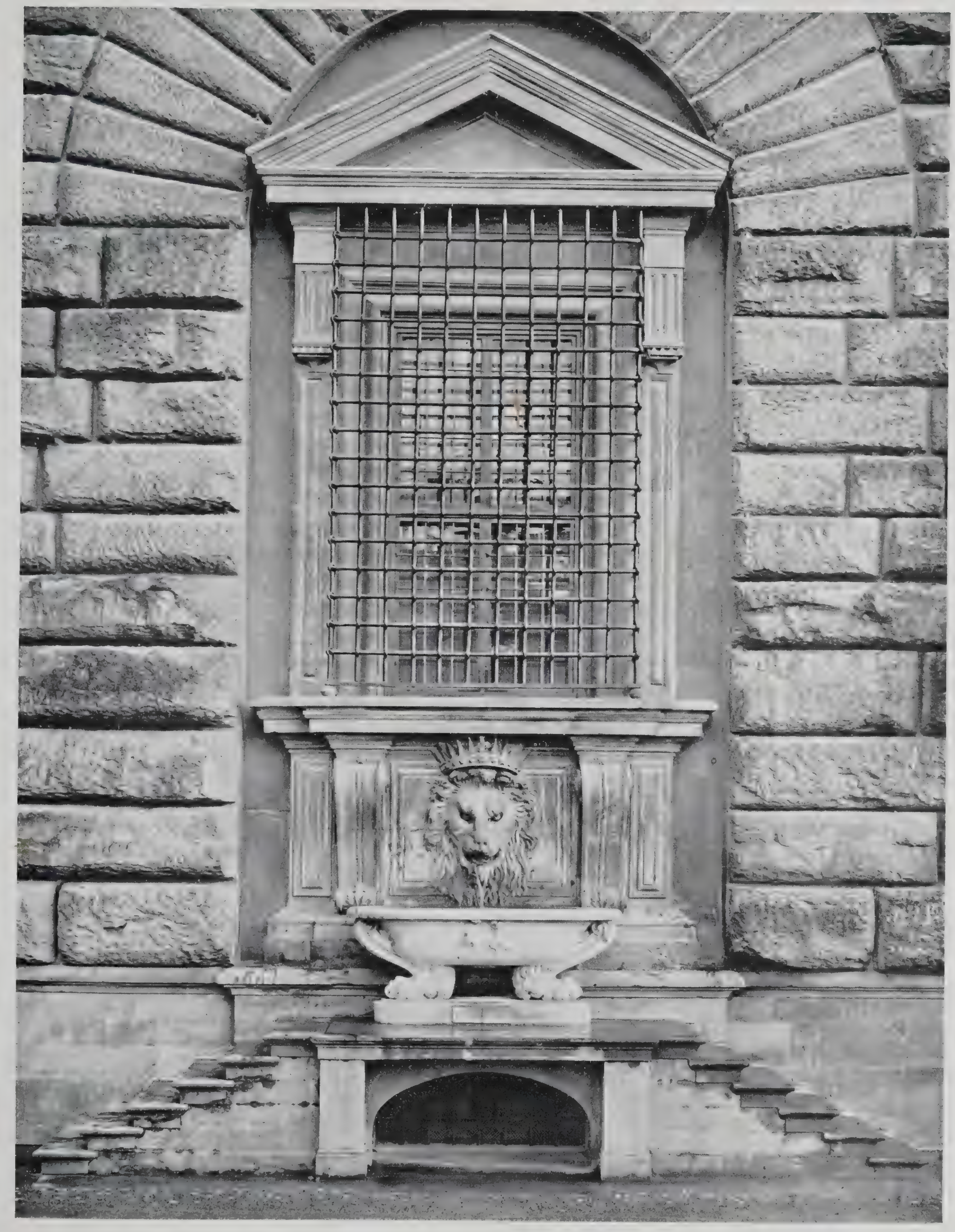
TRACY AND SWARTWOUT, ARCHITECTS.



CURRENT ARCHITECTURE. XCVII.—OFFICES AND STUDIOS, No. 60, TUFTON STREET, WESTMINSTER, LONDON.
H. S. GOODHART-RENDEL, ARCHITECT.



SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XXXVIII.—HOUSE IN WELL WALK, HAMPSTEAD, LONDON, N.W.



FLORENTINE PALACES. V.—THE PITTI: DETAIL OF WINDOW AND FOUNTAIN.
BARTOLOMMEO AMMANNATI, ARCHITECT.

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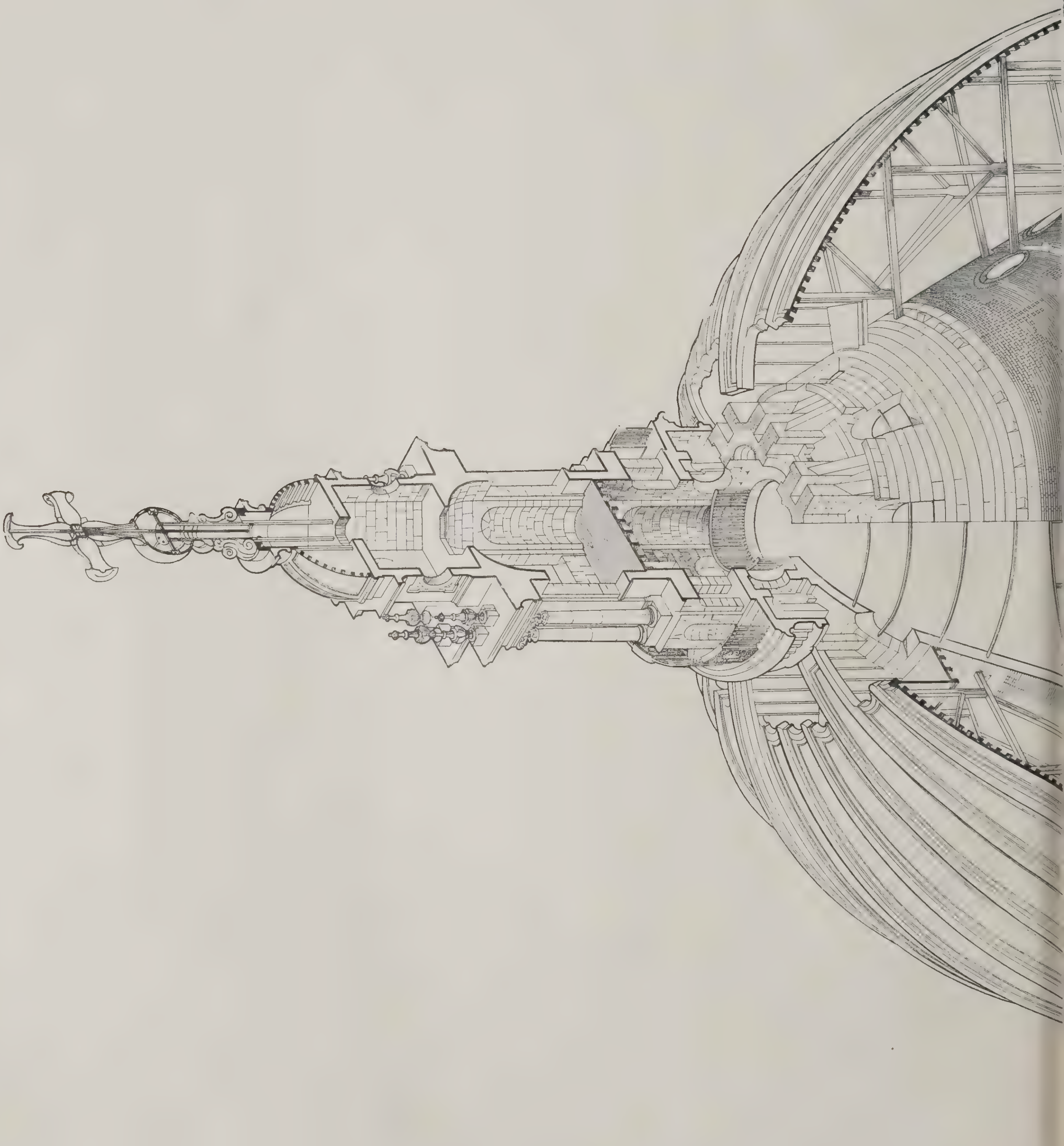
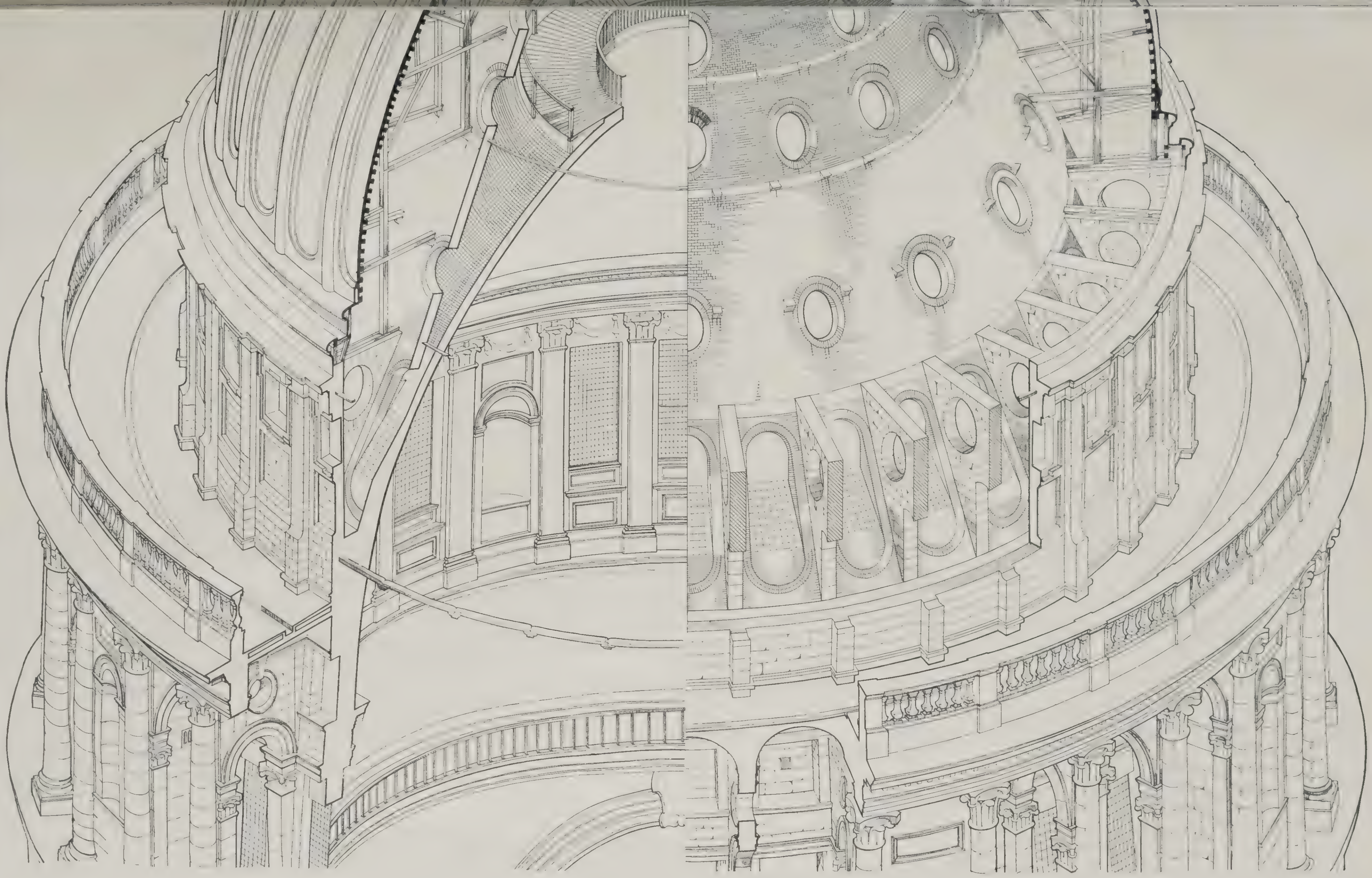
ent to " The Architects' and Builders' Journal," Wednesday, January 6, 1915.





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GEOMETRICAL DRAWINGS OF FAMOUS BUILDINGS. I.—THE DOME OF ST. PAUL'S CATHEDRAL.

MEASURED AND DRAWN BY WILLIAM DUNN. F.R.I.B.A., AND MATTHEW J. DAWSON, A.R.I.B.A. TRACED BY W. GODFREY ALLEN.

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THE PLATES.

"*Burst" on Ceiling, Queen's College Library, Oxford.*

THIS is the first of a new series of details of craftsmanship which, we think, will prove to be of great interest and value to our readers—of interest as fine examples of work in plaster, wood, iron, stone, and other materials, and of value as offering a wealth of suggestion for the decorative details of modern buildings. The "burst" is a detail of enrichment which was largely used by architects and craftsmen in the seventeenth and eighteenth centuries, particularly in France, where a *motif* suggesting the sun's rays was especially commendable to the age of *le Roi soleil*. The main treatment remains always much the same, a burst of rays from a centre, but the variations of the ornamentation are innumerable. In the present instance a female head—appropriate to a college named in honour of the Consort of Edward III.—is the central feature, while around is set a most elegant wreath of oak leaves. The "burst" is set in the middle of the central compartment of the ceiling, which is a splendid example of plasterwork of the late seventeenth century, by Roberts.

The Tomb of Napoleon.

There is no sight in Paris more impressive than the Tomb of Napoleon, placed under the dome of the Invalides in an open circular crypt 36 ft. in diameter and 20 ft. in depth, so that the spectator must bow the head in contemplation. In the centre is the sarcophagus, a single block of polished reddish-brown granite weighing nearly seventy tons, brought from Finland: it is 13 ft. long and 6 ft. 6 in. wide. Against the piers around the crypt stand twelve colossal Victories by Pradier, and on the wall between these are marble reliefs by Simart, with trophies of flags in front of them. The floor is a rich example of mosaic work, a huge wreath encircling the sarcophagus, with the names of Napoleon's chief battles on a border within. Visconti, the architect of this great conception, was born in 1791 and died in 1853. Napoleon's tomb was designed by him in 1842.

Studies for Missouri State Capitol.

These show the broad grasp of large problems which s characteristic of the best phases of modern American architecture. Roman work has been a rich source of nspiration to American architects, who, however, have not merely transcribed it, but infused throughout a modern spirit, so that we may say that the great Government buildings, the railway termini, the public ibraries, and other civic buildings of the United States are eminently American in character. The making of perspective studies of large architectural conceptions s a practice much to be commended. It enables the designer to feel his way to the final effect, and serves to correct faults which would not be apparent on geometrical drawings alone. And it is in this respect especially that the pencil studies for the Missouri State Capitol by Messrs. Tracy and Swartwout are so nteresting.

No. 60, Tufton Street, Westminster.

This building, recently completed, provides offices nd studios for its architect, Mr. H. S. Goodhart-Rendel. It is a scholarly design, made up of Classical elements treated in the individual manner that Mr. Goodhart-Rendel's work always displays. It is not desired that a plan of the building be given, for the eason that the present arrangement is not the final ne. The site, in fact, is no other than a narrow strip —about 15 ft. in depth. Such a site it would be practically impossible to utilise in the ordinary way, but the present case was an exceptional one, and the rchitect was able to adapt the site to his own articular requirements. The façade is carried out in Crowborough stocks, with red brick arches over window and door openings, Portland stone dressings, and a tiled roof. The window frames are of wood, the tympanums on the ground floor being of cement, with ornamentation in low relief.

House in Well Walk, Hampstead.

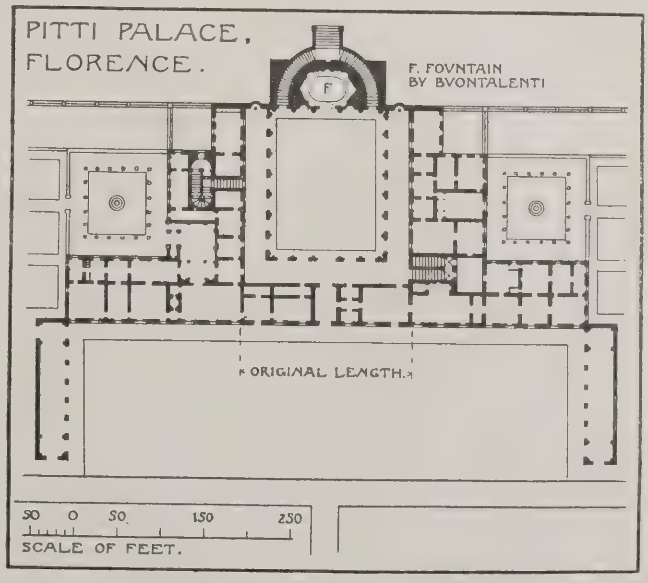
This is a very noteworthy house of the Late Georgian period, inasmuch as it offers an example of what may be termed Classical Gothic—certainly a type of work which one is accustomed to regard with misgivings, but here carried out with much charm and grace. The porch, the large bay on the first floor, and the window above all seem to have been designed by a Georgian architect seeking pleasant adventure in the Gothic field, with the result that this house is a sort of architectural *jeu d'esprit*. The disposition of its parts, as also the treatment of its detail, is fundamentally Classical, and the transmuted Gothic has a gay air about it which is very pleasing. It is not the sort of house one would care to see repeated in rows, but as single unexpected unit it is immediately captivating.

The Pitti Palace, Florence.

Though the façade of the Pitti Palace is rather monotonous in its repetition of windows and arches, its straight lines of dwarf balustrading, and its bald outline, but there are points of interest in it, particularly the ground-floor windows, with their small fountains at plinth level. One of these is shown on the plate. The accompanying plan of the palace we have taken from "A History of Architectural Development," by Professor F. M. Simpson, who makes the following comment on the façade: "The front included originally only three openings on the ground floor, and seven bays above, instead of the existing twenty-five. But as each of the three storeys averages nearly 40 ft. in height, and each bay is 24 ft. centre to centre, Luca Pitti's estimate of his requirements was evidently no very modest one. The semi-circular-headed window recesses are each 24 ft. high by 12 ft. wide; the simple ratios of 1 to 1 and 1 to 2 being evidently strictly followed. The windows themselves are only about half the width of each recess, the surrounding walling being smooth stone. Scale is given to the building generally, and the recesses in particular, by pilasters on the jambs of the latter, which, by their smoothness and lightness, also relieve the ruggedness of the mass of walling. . . ."

The Dome of St. Paul's Cathedral.

The remarkable drawing which we publish this week shows, as no other type of drawing could, the form and construction of Wren's great dome. A full description of the construction is given in the article on the next page.



(From Professor Simpson's "History of Architectural Development.")

THE CONSTRUCTION OF THE DOME OF ST. PAUL'S.

(See double-page Plate.)

EACH succeeding stage of the development of dome construction affords evidence of an increasing disposition to give to the dome a more imposing appearance externally. It was mainly with a view to the attainment of this object that the innovations about to be noticed were introduced in St. Paul's. At the same time, the claims of the interior could not be ignored, and thus both the increase of the external elevation and the restriction of the internal height became important factors in the design.

In earlier domes practically the same dome is seen when viewed either from the inside or the outside; and it certainly seems most fitting that one should serve for both roof and ceiling.

But, as has been ably pointed out, if one dome is to serve both these purposes, it cannot be made "artistically perfect"; for, if the height be restricted to what looks well from within, it will be too low for external effect, as seen in the Pantheon and in Sta. Sophia; on the other hand, if elevated so as to be imposing externally, the interior will either be lost in obscurity, or, at the best, appear quite disproportionate; of this St. Peter's is an example. The dome of the Duomo comes most nearly to satisfying these contrary requirements; and the architect of St. Paul's has also kept, in its interior, the same proportions, i.e., two diameters in height; while, for external effect, he has provided a separate and distinct dome, making the height equal, in proportion, to that of St. Peter's. The great depth of the intervening space seemed to demand the provision, between the domes of some other and independent support for the stone lantern, and to this necessity we are indebted for that master-stroke of genius—the introduction of the cone.

The general design of the Dome of St. Paul's bears unmistakable indications of a careful study, by Wren, of the great work of Michael Angelo. But the English architect aimed—and, it must be admitted, with considerable success—at the production of the desired effects by the use of the slightest materials compatible with sound construction. Evidence of this is also traceable in the supporting structure, where even the piers are so arranged as to offer the least obstruction.

The leading idea for the central compartment is a regular octagon, open at all sides to the several extensions.

Imagine four massive piers rising from the angles of a square, and occupying the same ground area as do those of St. Peter's. The aisles, however, instead of terminating dead against them, as in the earlier church, are continued through to the central compartment, thus effecting the subdivision of the four supports into twelve separate piers. Eight of these, each 28 ft. 6 in. by 15 ft. on plan, circumscribe the octagon; the remaining four occupy the outer angles of the square. The latter are built hollow, and take none of the superincumbent weight; their primary purpose being to resist the thrust of the barrel vaults, which, at the height of 65 ft. from the floor, span the four main openings. With a width of 40 ft., each of these occupies nearly the whole of one side of the octagon; while, to correct the apparent weakness of the supports at the angles, the intermediate openings are reduced in width to 28 ft., and divided into two tiers; the recesses beyond, formed by the intersection of the aisles, being vaulted by semi-domes. To secure uniformity in the pendentives which spring from the angles of the octagon, the arches over the upper tier extend beyond the openings, so as to range, and in size correspond with those on the other four sides.

At this stage is seen what is the least satisfactory portion of the whole design. The width of the main extensions is so contracted as to be out of all proportion to the central compartment; and, in making the openings to these extensions as wide as possible, the whole eight arches are brought so closely to each other as to give, at first sight, the appearance of the superstructure rising from eight mere points. This impression is somewhat modified by the wall of the drum being set back from the inner face of the octagon, which arrangement admits of the formation, at the height of 100 ft. from the floor, of what is popularly known as the "Whispering Gallery." Another, and a more important, result is that the pendentives by which, at this level, the octagon is converted into a circle are relieved of all weight beyond that of the cornice and balustrade of the gallery. The great projection of this cornice assists still further in disconnecting the upper part of the design, and the apparently weak supports below.

From this level the influence of St. Peter's becomes still more manifest. The drum is divided into two stories—the basement, which is quite plain, and the upper storey, enriched with the peristyle, and pierced with windows. The basement is of much lighter construction than that of St. Peter's; and consists of a thin wall, concentric with, and about 8 ft. distant from, the inner wall of the drum: the two being connected by piers, on which are erected the counterforts of the peristyle. Round the outer wall, at intervals, are placed low buttresses, which are concealed beneath the roofs and afford a broader base for the superstructure. The space between the walls—containing galleries—is covered with a flat roof of timber, overlaid with lead.

A peculiarity of the drum is that the slight inward inclination of its wall gives to it the form of the frustum of a cone. This innovation may have been introduced with a view, primarily, to its effect on the foreshortening; but it cannot fail to increase the resisting power of the drum. The height, from the level of the "Whispering Gallery" to the springing of the dome, is 60 ft.; the internal diameter at the bottom is 109 ft., and at the top 102 ft.; the thickness of the wall above the basement is about 4 ft.

The peristyle of St. Paul's is far more elegant than that of St. Peter's. The grouping, in the earlier instance, gives place, in the later, to equal inter-columniation, and the entablature is carried round in an unbroken line. Each column, instead of having a solid backing of masonry its whole height, has only its upper part connected with the inner wall, and this in a manner so unobtrusive as hardly to encroach on the simple dignity of the colonnade. The architect, however, deemed it unwise wholly to rely on this slight abutment, which he increased by filling in every fourth inter-columniation; and thus, at the same time, provided facilities for staircases. The smaller counterforts are also strengthened by arching over the intermediate spaces, behind the entablature, whereon is laid the floor of what is known as the "Stone Gallery." Each counterfort is secured to the drum in the upper part by two iron ties or cramps, the whole being encircled by a chain embedded in the architrave of the peristyle.

In giving to the structure greater importance externally, while preserving the symmetry of the interior, it was found desirable to raise the peristyle 15 ft. higher than the inner wall of the drum. An important structural advantage over St. Peter's is here secured in the abutment thus provided to the lower dome.

In dealing with the remaining portion of the structure, it will be convenient to consider, first, the inner dome or ceiling; then the cone supporting the lantern; and, lastly, the outer dome or roof.

The lower dome has an internal diameter of 102 ft.; its radius, drawn to the vertex, makes, with the vertical, an angle of 10 deg.; and the thrust, which is consequently less than if the section were semi-circular, is still further reduced by the omission of the crown, the opening being about 20 ft. in diameter.

It is constructed of ordinary bricks, except that at every 5 ft. in the height a course of 18 in. brick passes through its entire thickness for the purpose of binding it. Having no extraneous weight to support, the slight thickness is fully adequate to all structural requirements. The haunches are filled in solid to a level of about 20 deg. from the base, and thus is provided a firm foundation on which the cone is erected.

This novel feature of St. Paul's has been justly pronounced "one of the most elegant applications of science ever introduced into a building." It meets the necessities of the case more completely than any other contrivance could have done, and that with the smallest outlay of material. It not only affords the firmest support to the lantern, but by its means the desired elevation is most readily attained. Indeed, in both these respects the capacity of the cone is well-nigh unlimited. Its form admits of its being carried to almost any height with perfect ease and safety, and it receives an accession of strength with every approach of the angle of its inclination toward the vertical. Seeing that the pressure is confined to a straight line within the thickness, the risk is not of bursting, as in a dome, but rather of spreading; and if the cone be secure at its base, the risk is—as Ware has well put it—"concentrated in the frangibility of the material."

The cone in St. Paul's has an inclination of 24 deg. with the vertical, and an internal diameter of 100 ft. at the bottom, and of 30 ft. at the top, where it terminates in a cupola, which supplies, at the height of 90 ft. from the base, the strongest form of foundation for the lantern; and is also a fitting termination to the vista obtained from below, through the opening in the lower dome. The cone is built of brick 18 in. in thickness, with six bands of stone, each containing an iron chain run with lead. A double iron chain, linked at intervals of 10 ft., and bedded with lead in a channel cut in the stonework, checks any tendency to spread at the base, while also aiding to secure the dome at its haunches.

The liability of the cone, by reason of the extreme tenuity of its shell, to fracture, in case of disturbance in the substructure, is greatly increased by the weight of the lantern; and it was, doubtless, this danger that suggested the insertion of the additional ties, in stone bands, at different levels between the base and the summit. The numerous apertures in the cone, in addition to reducing its weight, answer the not less important purpose of limiting the extent of possible fractures, and also serve for lighting and ventilating the internal spaces. The power of resistance to pressure, residing in the domical termination of the cone, is severely tested. Though the thickness of the shell is only one-twentieth of its span, and though it is still further weakened by the loss of nearly one-third of its mass by openings, it has proved fully equal to the task of sustaining the enormous estimated weight of 700 tons. It must be remembered, however, that this vast weight is not borne by the crown—which is open to the lantern—but distributed over the haunches.

In a triple structure like the dome of St. Paul's, it is clear that the limitation of the weight is a question of the first importance; and, with the united weight of the lower dome, and of the cone and lantern, already pressing on the wall of the drum, the use in the construction of the outer dome of timber, rather than some heavier material, was, no doubt, a practical necessity.

In order to give to the external dome the desired elevation, a second drum, or attic story, is raised on the lower drum to the height of 25 ft. above the peristyle. This additional feature contributes greatly to the general symmetry of the structure. Thin cross walls, at intervals of about 8 ft., and pierced in order to reduce their weight, connect the wall of the attic with the cone. These receive the thirty-two radiating frames of oak which support the curved ribs of the outer dome. The ribs are 11½ in. by 10 in. at the bottom, and 6 in. by 6 in. at the top. The framing is almost entirely dependent on the cone, in which, and passing quite through the thickness, are inserted stone corbels, which receive the ends of the horizontal timbers of the different stages; these timbers being fastened to the corbels with iron cramps. The ribs are tied in, at intervals, with bands of iron; while between them, at short distances apart, and following the curvature of the dome, horizontal timbers are framed and boarded. The ribs have a slight projection on the exterior; the whole of which, instead of being covered with copper, as was originally intended, is covered with lead.

To light the interior of the cone a somewhat ingenious method is adopted. In the upper part of the outer dome, every alternate couple of ribs is cut short, and eight wells are formed in the framing around the base of the lantern, thus providing accommodation for windows, through which, and corresponding apertures in the summit of the cone, light is transmitted to the space below.

The gallery of timber immediately above serves as an artistic connecting link between the dome and the lantern. The latter rises at the height of 275 ft. from the floor of the church to a further altitude—including the metal ball and cross—of 85 ft. Roughly speaking, at the base it is 22 ft. square; the interior, which is octagonal, being about 11 ft. in diameter.

In attempting to form a just estimate of the dome of St. Paul's, it should not be overlooked that in St. Peter's, where similar difficulties existed, they were, at least, honestly faced; but Wren, as if deterred by their formidable character, turned aside from the legitimate path, by disregarding, to a great extent, the capabilities of the dome. Hence, so far from St. Paul's presenting a satisfactory solution, it ought rather to be regarded as a skilful evasion of the problem.

Further, the pre-eminently scientific character of the construction has involved a great seeming waste of space (still leaving the lower dome much too high for proper effect) and has also necessitated the use of material of a perishable nature; while "the fabric"—to quote the words of an eminent authority—"is not to be safely trusted to the independent strength of its own construction." Still, taking into consideration the difficulty of reconciling the opposite requirements of the exterior and of the interior, and the ingenious application of the cone to accomplish that purpose, the architect may well be excused, and his fault condoned—if fault it be—in presence of the matchless symmetry and unequalled grandeur of the noble exterior.

ARCHITECTS' WAR SERVICE BUREAU.

MR. ALAN POTTER, hon. recruiting officer of the Architects' War Service Bureau, writes to say that he has received so many inquiries about enlisting as the result of his letter in a recent issue of this Journal that he desires to make a further statement.

He says: "Since writing before, we have been in communication with the depôts of nearly all branches of the Services, and we are now in a position to advise and help men to enlist to the best advantage. Skilled men of all kinds are urgently needed in addition to ordinary recruits. Draughtsmen, accountants, fitters; men of the building and engineering trades; men accustomed to horses; motor mechanics, saddlers, smiths, wheelwrights, carriagesmiths, chemists, men with sanitary experience, etc., etc.

"I shall be pleased to advise all applicants who write to me, or who call at 18, Tufton Street, Westminster."

CONCRETE AND STEEL SECTION.

(MONTHLY.)

NEW JOINERY WORKS AT MANCHESTER.

BY T. McGILL, A.M.I.Mech.E.

The new building at the works of Messrs. J. Gerrard and Sons, Limited, builders and contractors, Swinton, Manchester, shown by the accompanying illustrations, is especially interesting both as an example of modern construction and as a model lay-out of a joiners' shop.

In considering the general design of the building, which takes the place of that portion of the firm's works which was destroyed by fire on March 5, 1914, the following were the main features aimed at: (1) Economical construction; (2) even distribution of lighting; (3) uninterrupted floor area—stanchions being avoided as much as possible; and (4) provision for future extension.

The building, as shown on the plan, Fig. 1, is enclosed by brick walls 14 in. thick, provided with suitable piers to support the ends of the roof girders; the average internal dimensions between the walls being 330 ft. long by 140 ft. wide. The height from the floor level to the underside of the girders supporting the roof is 12 ft. 6 in. The plan is divided transversely into five bays, each of 66 ft. span; the roof girders, spaced at 16 ft. 6 in. centres, being carried by continuous longitudinal girders, supported on steel stanchions spaced 33 ft. apart.

It will be noticed that the building lies almost directly north and south, and as the space to be lighted covers a large floor area, and the occupancy such as to require only comparatively low head-room, it was decided to adopt the saw-tooth form of roof. This method of construction, if properly proportioned, gives an abundance of almost perfectly diffused light while avoiding the direct rays of the sun.

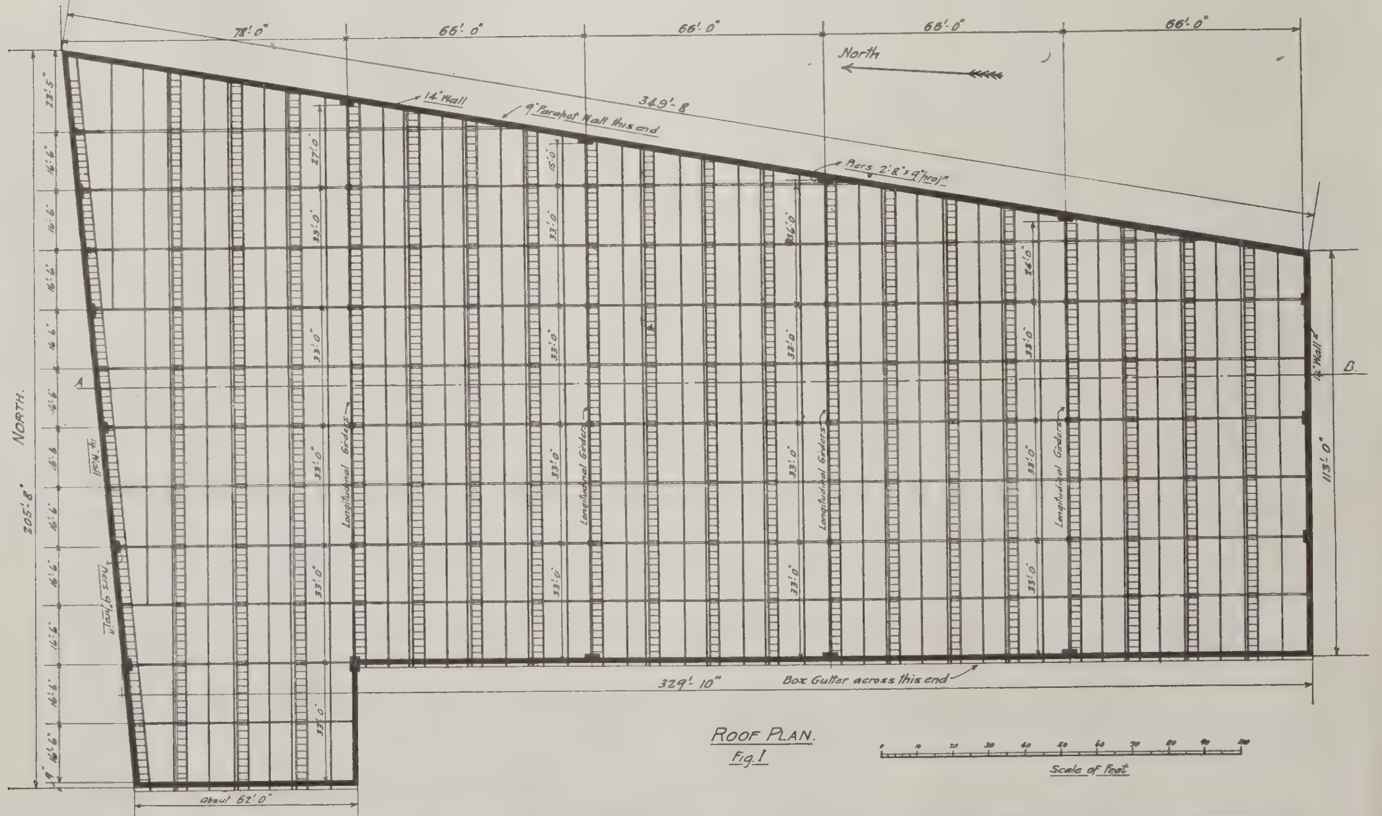
The transverse girders or roof trusses, shown in elevation in Fig. 2, are of 66 ft. span with a depth of 6 ft. 9 in., of the "Warren" type with sub-divided panels, the secondary members forming the framing of four small "saw-tooth" trusses of 16 ft. 6 in. span. The top boom of these girders is formed of two 5 in. by 3 in. angles for the full length, and the bottom boom is also formed of 5 in. by 3 in. angles, except in the end panels, where 3 in. by 2½ in. angles are used. The internal members are composed of 3 in. by 3 in. angle rafters, 2 in. by 2 in. angle struts, and 2 in. flat bar diagonal ties; the connection plates are ⅜ in. thick; and the whole is riveted together to form one complete girder, which is built with a camber of 1½ in.

The longitudinal girders are of the "Pratt" type, 33 ft. span by 5 ft. 6 in. deep, each divided into four panels; the top boom consisting of two angles 4 in. by 3 in. and the bottom boom of two angles 3 in. by 2½ in. Single angles are used throughout for the bracing, the vertical members being 3 in. by 3 in. in section, and the diagonals 3½ in. by 3 in. Connection plates ⅜ in. thick, with ¾ in. diameter rivets, are used at all connections, and the girders are built with a camber of ¾ in. One of the girders is shown in elevation in Fig. 3, and it will be noted that these girders are placed up in the valleys, so as to maintain the minimum headroom and at the same time carry the glazing, which is vertical at these points.

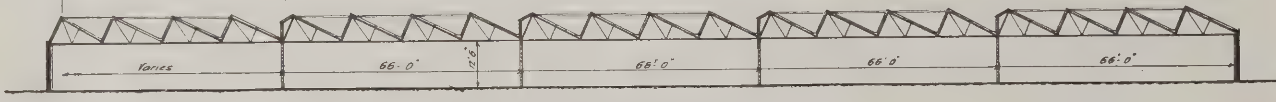
The stanchions are composed of 8 in. by 5 in. rolled steel joists, fitted with riveted caps and bases, formed of angles and plates. The bases are built into concrete foundations, to which they are secured with holding-down bolts ⅞ in. diameter by 18 in. long, with suitable washer-plates.

The longer slopes of the saw-tooth trusses forming the transverse girders have each two lines of purlins, formed of 4 in. by 3 in. angle with 4 in. by 3 in. fir timber filling, the steel angles being securely bolted to the rafters. The ridge purlin is out of 6 in. by 4½ in. fir timber, bolted to angle cleats which are riveted to the girders. The covering on the flat slopes, which lie at an angle of 22½ degrees with the horizontal, is formed of 1¼ in. rough

NEW JOINERY WORKS. MANCHESTER



ROOF PLAN.
Fig. I



SECTIONAL ELEVATION A.B.

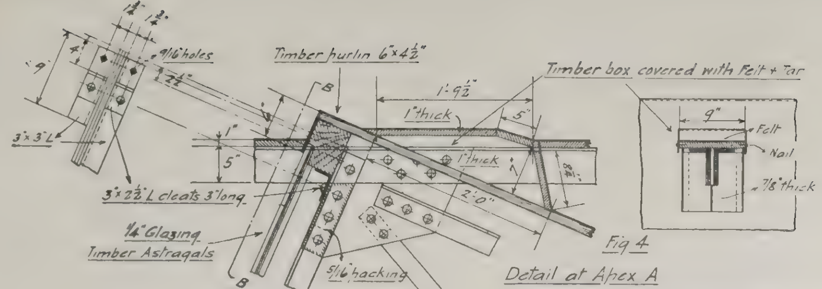
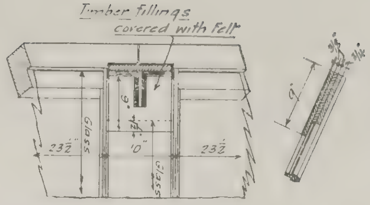
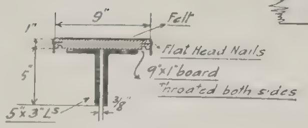


Fig 4

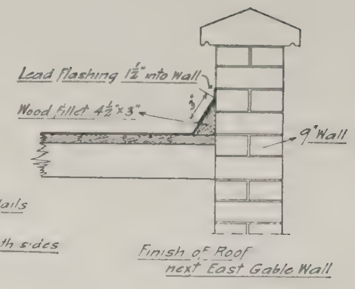
Detail at Apex A
Showing method of flashing round Top Boom



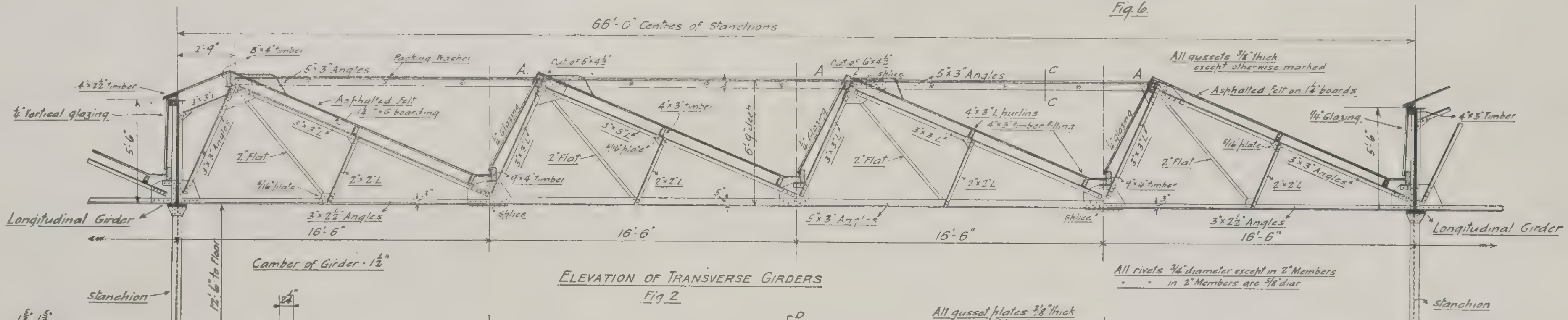
Elevation B.B.
Fig. 5



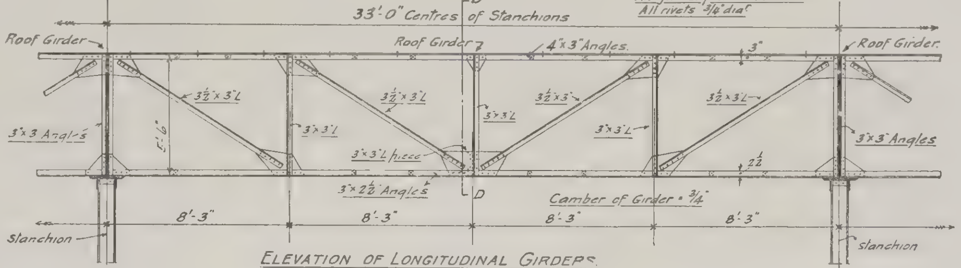
Section C.C.
Fig. 6



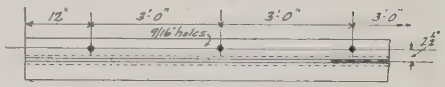
Finish of Roof next East Gable Wall
Fig. 7



ELEVATION OF TRANSVERSE GIRDERS
Fig 2



ELEVATION OF LONGITUDINAL GIRDERS
Fig 3



Plan of Top Boom – Longl Girders
Fig 8

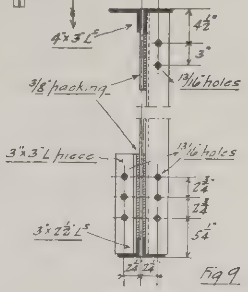
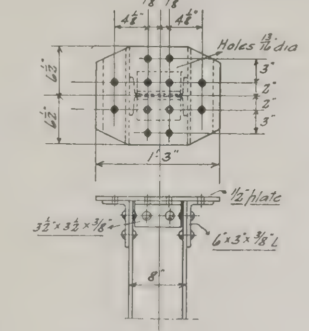
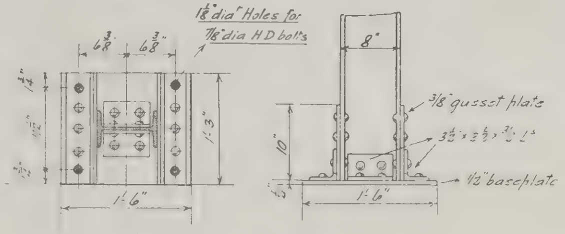


Fig 9
Section D.D.



Detail of Stanchion Cap
Fig 10



Detail of Stanchion Base
Fig 11

NEW JOINERY WORKS. MANCHESTER.

Scales of feet

JOINERY WORKS, MANCHESTER: VIEW FROM NORTH-WEST CORNER, SHOWING ROOF GIRDERS.

boarding covered with asphalted roofing felt. The steep slopes of the roofs are glazed with ¼ in. rough cast glass, the panes being in one length and supported on timber astragals spaced at 23½ in. centres, except where the transverse girder passes through, at which point a pane 10 in. wide is used.

Ventilation is provided by the use of pivoted sashes, two panes wide, formed in the skylight, and extending the full depth of the slope, two opening sashes being provided to each 16 ft. 6 in. bay.

The bottom of the astragals is carried by a 9 in. by 4 in. fir timber purlin in each valley, which, together with 1¼ in. rough boarding from the lower purlin on the flat slope, forms the gutter between the saw-tooth spans. The gutters are composed of asphalted felt in two layers, securely cemented together with special tar varnish, and each stretch of gutter is provided with an outlet at the west end of the building. The rainwater from the gutters is collected into a timber box-gutter of large section which extends across the end of the building and is fitted with 4 in. diam. cast-iron down-pipes at suitable intervals.

In order to protect the top booms of the transverse girders exposed to the weather, they are overlaid with 9 in. wide by 1 in. thick rough boarding, throated along the edges, and covered with asphalted felt coated with tar varnish, the connections with the roof slopes where the transverse girder passes through being formed as shown in the details, Figs. 4 and 5.

Even with the amount of light furnished by a properly portioned saw-tooth roof, a very large gain is made by a thorough whitening of all interior surfaces, a fact which has been taken advantage of by whitewashing the walls and painting the whole of the roof steelwork with white paint.

The builders' work, comprising foundations, brickwork, timberwork, plumbing glazing and painting, has been carried out by Messrs. Gerrards' own workmen, the asphalt roofing being supplied and fixed by the W.E.F. Flat Roofing Co., of Manchester. The steelwork was designed manufactured and erected by Messrs Edward Wood and Co., Ltd., structura engineers, of Manchester and London This firm make a speciality of all classes of structural steelwork for industria buildings, and have adopted this type o construction with great success in severa large weaving sheds in the Lancashire district.

SHEAR IN REINFORCED CONCRETE.*

BY H. KEMPTON DYSON.

Reinforced concrete beams pass through two stages in their resistance to cross breaking. In the first stage the steel remains uniformly connected to the concrete in which it is imbedded. In the second stage the steel slips through the concrete for part of its length, and the concrete cracks in the tension portion, s that the beam becomes converted into form of construction which, in differen modes of reinforcing, would appear t consist of either a concealed arch with steel tie, a trussed beam analogous to the trussed timber beam, or a frame. Frame subjected to transverse loading are, o course, subjected to shearing forces, bu the effect of these is naturally ver different on frames from that on a girde with a solid web or upon arches. A shearing force diagram only consists of the plotted values of the tendency to shear

JOINERY WORKS, MANCHESTER: VIEW FROM SOUTH-WEST CORNER, SHOWING ROOF CONSTRUCTION AND COVERING.

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* Extract from a paper read before the Concret Institute on December 3.

asunder which the load exerts upon the structural member. We can, therefore, have a shearing diagram equally applicable to a beam, an arch, or a frame, but the manner of using the diagram for determining the internal stresses which result from the shear forces must be different in each case.

Persons may be misled in connection with shearing force diagrams as applied to frames by reason of the similarity between the use of the diagram for calculating stresses in a beam and a frame. Whereas the application is close in the case of concentrated loads applied at the connection points of the frame, in the case of distributed loads the shearing force diagram is not so closely related. The fact that the area of the shear force diagram up to any point is equal to the numerical value of the bending moment at that point in the case of freely supported beams will often be found of considerable service in practice, while the feature that the point of maximum bending moment is the point of zero shear, which is of general appliation to free, fixed, and continuous beams, s of common employment for the determination of the maximum bending moment.

The fixing of one end, and one end or he other, have an effect upon the distribution of the shear along the length of a beam. Partial fixity, as occurs with coninuous beams, will affect the shear in imilar fashion, and it should be noted also that partial loading of continuous beams (i.e., loading any or all of the spans wholly or in part) will result in different distributions for the shear, and will give different reactions on the supports. For his reason the current practice of generally taking the load on the support ext to the end of three or more continuous qual spans as equivalent to the load on ne span is considerably in error, as is he practice of taking the shear as the ame as on a freely supported span. For he determination of shear throughout the ength of beams required to sustain travellng loads, where these point loads are pplied at several points of the span, and an move throughout the span, use is made of influence line methods. The hear in the webs of beams is applied o the flanges. This may be condered generally as a gradually increasing hrust from the ends of a beam, and tends o cause lateral flexure of the compression ange considered as a long strut.

When the web is stiffened, either vertially or obliquely, the stiffeners act as ruts, and the web takes diagonal tension ke the diagonals of a frame. This iagonal tension tends to cause vertical econdary bending of the flanges between e panel points, which should again be ken into account in the detailing of plate rders. If the stiffeners are arranged ertically, they convert the girder into ractically a Pratt truss, where the iffeners are in compression; while, if the acing of the stiffeners is closer together an the arm of the beams apart, the agonal tension may still be considered inclined at 45 degrees. the system beming one of superimposed trusses.

Reinforced concrete beams are quite a ecial form of construction. because the esses are induced in them in different ays, according to different modes of arnging the reinforcement, and according the amount of reinforcement; that is to , a reinforced concrete beam may prefer act as a flat arch with a tie-rod if it is le to hold up in such a form with less ess than it would in some other fashion. the other hand, if it acts as a beam, the conditions in the case where the stress is such as not to have ruptured the concrete by tension therein, are different from the conditions where the concrete is cracked. Generally, some parts of all reinforced concrete beams are in the uncracked condition, and really require analysis on the lines of a homogeneous section; the materials, however, having different moduli of elasticity, both for the concrete in tension and compression and for the steel. In the majority of cases the reinforcement is insufficient in amount to prevent cracks occurring at some point or points in the beams, and then when cracks appear it means that the steel has moved in the concrete, and that the construction either consists of a trussed beam or a framed beam in part or in whole. Where the reinforcement is inclined at the ends, there is an obvious analogy to a trussed timber beam. Such a type of reinforcement is quite appropriate for point loads. When the cranked bars are in combination with straight horizontal bars, a practical type of reinforcement is provided which forms a sort of half-way house, and can equally well resist point loads or distributed loads. In the latter case not only do the straight bars produce one sort of beam action, but the cranked rods resist the shear by reason of the fact that the inclined pull in the bars affords a vertical component at every part of the length.

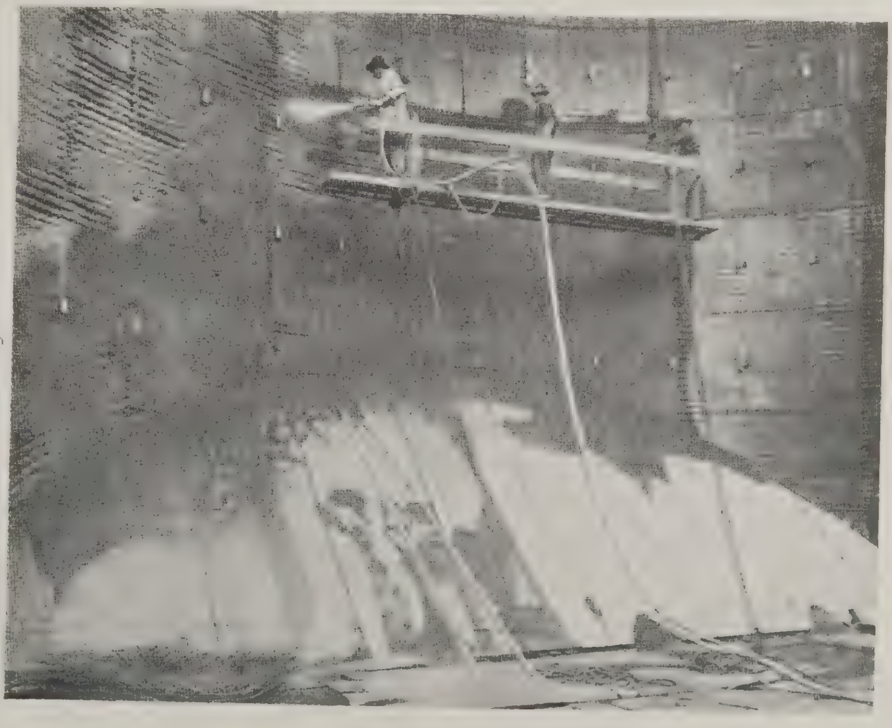
It was early found in practical work that it was advantageous to reinforce beams against shearing force in other manners than by trussing members. Either alone or in combination with such vertical reinforcements, web members (either vertical or diagonal) were provided. Numerous patents have been taken out for various forms of separate web members, though often they can be economically provided by turning up the main bars. Where other practical and theoretical conditions preclude one from using so many bars as would enable them to be turned up at the proper additional separate members, the system may be a double one.

The frame action of vertical and inclined web members generally belongs to one of two types. In the first case, where vertical web members are employed, the construction becomes a kind of N-truss, in which the concrete forms the compression members and the steel the tension members. In the diagonal form the construction becomes practically a lattice girder. In both types the frames may be, and often are, superimposed; that is to say, the spacing of the vertical members or of the diagonal web members is frequently fairly close.

It should be borne in mind that the theoretical analysis of the stresses in materials is in the nature of a speculation. It is an attempt, like all scientific theory, to explain the facts. But with the progress of investigation further facts come to light which cause us to modify the former theory; and in that way a greater exactitude concerning theories is attained. The practical engineer will be able to make his own simplifying assumptions for approximate calculations.

LINING A TANK WITH THE CEMENT "GUN."

A short time ago we published an illustrated account of the cement "gun," an ingenious apparatus for applying cement through a nozzle by means of compressed air, the cement being hydrated at the point of application. We now give an illustration showing the "gun" in operation. The construction is a circular steel coal tank, 55 ft. in diameter and 40 ft. high, with a capacity of 2,100 tons, at the works of the Minnesota Steel Company. This tank has been lined by means of the cement "gun," the lining being intended to protect the steel from the corrosive action of sulphur in the coal, and also to prevent abrasion. In carrying out the work iron lugs were fixed at numerous points around the inside of the tank, and vertical rods were securely wired to them. Wire cloth was then fixed in sections, kept ¾-in. from the surface of the steelwork, and "gunite"—a special cement compound—was applied through nozzles connected by hose-pipe with the "gun," the first layer being shot through the mesh and the second and final layer next deposited bringing the thickness up to 5 in.



LINING INSIDE OF LARGE COAL TANK WITH CEMENT "GUN."

NEWS ITEMS.

A New Knight.

Among the new knights is Sir John Cowan, chairman of the well-known firm of constructional engineers, Messrs. Redpath, Brown and Co., Ltd., of Edinburgh.

The Destruction of Louvain.

An admirable article on Louvain and its destruction by the Germans, written by the Rev. J. Charles Cox, LL.D., F.S.A., is published in the January issue of "The Antiquary."

Fatal Building Accident at Derby.

Three deaths have occurred as the result of the recent scaffolding accident at Derby, when a block of masonry weighing 30 cwt. was dislodged from the Co-operative Society's new premises by a crane.

The Bayeux Tapestry.

The latest addition to the excellent publications recently issued from the Department of Textiles at the Victoria and Albert Museum is a Guide to the Bayeux Tapestry, prepared by Mr. F. F. L. Birrell.

"*Specification*," 1915.

The new edition, for 1915, of "Specification," the standard work of reference upon all practical details relating to the profession and industry of building, is now ready for publication. It contains important new features of great topical interest and practical value, to which attention will be drawn in detail in the next issue of the Journal.

Norwegian Memorial to Captain Scott.

A memorial to the late Captain Scott has been unveiled at Finse, Christiania. It consists of a monolith 15 ft. high, inscribed in full with the names of Captain Scott, Dr. Wilson, Captain Oates, Lieutenant Bowers, and Petty Officer Evans, and the date January 18, 1912.

The Decorators' Diary and Year Book.

The Decorators' Diary and Trade Year Book, 1915, contains much useful trade information in a convenient form. There is an alphabetical list of specialities, with their makers, and a directory of trade names with postal and telegraphic addresses and telephone numbers.

Building Trade Outlook in the North.

At the recent annual meeting of the Tees-side and District Master Builders' Association, held at Middlesbrough, the secretary, Mr. W. C. Creasor, in his annual report, stated that a year ago the building trade, during 1914, was expected to be much better, but unfortunately the hopes of the builders did not materialise. There was a slight prospect at the beginning of the year, but the European crisis upset everything.

Commercial Enterprise.

A fine example of enterprise is afforded by the well-known firm of Messrs. H. H. Martyn and Co., of Cheltenham. When the war broke out Messrs. Martyn, evidently realising that luxuries would be at a discount, immediately entered into the spirit of the times and, putting down fresh machinery, started work for the War Office. At present they have something like £10,000 worth of ammunition cases in hand, and they are almost daily adding to these quantities by making thousands of different articles for the new army. As a result, their large workshops are filled with workmen and materials, with machinery going from early morning till late at night, Sundays as well as week-days.

OBITUARY.

Mr. G. W. Eve.

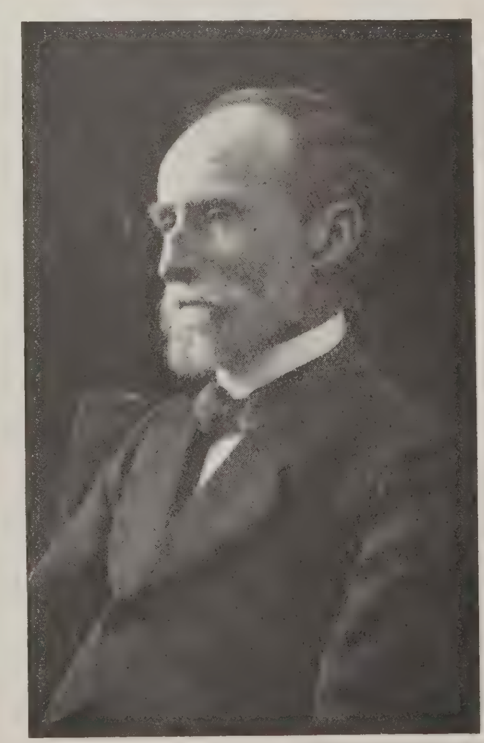
The death is announced of Mr. G. W. Eve, well known for the excellence of his book-plates and for his books on heraldry.

Estate of the Late Mr. Stockdale Harrison.

Mr. Stockdale Harrison, F.R.I.B.A., of Leicester, who died on November 10, aged sixty-eight years, left estate of the value of £22,529. He bequeathed £30 each to his assistants, E. R. O. Davis, J. O. Lancashire, and W. Matthews, and £10 to John Duncan Fraser, and the interest in his practice to his sons, James Stockdale and Shirley.

M. Armand Considère.

The names of many distinguished Frenchmen are associated with the scientific application of reinforced concrete to building and engineering constructions, and none more honourably than that of M. Armand Considère, whose death was recently announced. The accompanying portrait is characteristically French—the face of a man possessing a keen mind and a kindly disposition. M. Considère, who was born in 1841, for the greater part of his life—from 1865 to 1904—was engaged on work in the Department of Ponts et Chaussées, and it was during the latter part of this time, from 1899 onwards, that the subject of reinforced concrete received his especial attention. In the year 1901 he invented the spiral reinforcement which characterises the Considère system—a system particularly adaptable to pile foundations and arched bridges. He also invented several other processes for civil engineering construction, including conical foundations, and was the author of many treatises on civil engineering. M. Considère was chairman of the committee which drew up the Regulations for Reinforced Concrete Construction issued by the French Ministry of Public Works, and in recognition of his great achievements he was appointed, in 1907, president of the Reinforced Concrete Section of the International Association for the Testing of Materials.



THE LATE M. ARMAND CONSIDÈRE.

PROJECTED NEW WORKS.

Housing Scheme, Mostyn.

The Local Government Board has approved a housing scheme for Mostyn, Flints.

Schools, Bandon Hill.

The Surrey Education Committee are to spend £9,772 for a new school, and on alterations and additions to the existing buildings at Bandon Hill, Beddington.

Baths, Poplar.

The Poplar Borough Council has decided to apply for power to borrow £10,000 for the provision of slipper baths and washhouses for Bromley. The baths will be constructed in Violet Road.

Houses, Watford.

Watford Urban District Council propose to borrow £20,252 for the erection of working-class houses. The scheme provides for 80 houses in Willow Lane on the Hollywell Farm.

Factory, Glasgow.

Plans have been passed for the erection of a factory at Greenbank, near Ayr Road, for Messrs A. Cunningham, Ltd., hosiery manufacturers, Stewarton, by the Irvine Dean of Guild Court. The estimated cost is £2,000.

New Schools, Islington.

New school buildings are to be erected in Islington by the London County Council, who have obtained power to acquire houses in Chalfont Road, Victoria Road, St. James's Road, Hanley Road, and Grenville Road in order to provide the sites.

Buildings, Coventry.

Coventry City Council have sanctioned the erection of a new school in Folly Lane to accommodate 1,200 children, at an estimated cost of £15,000. The Council have also consented to the erection of eighteen houses upon vacant land near Priestley's Bridge Depôt. The Baths and Parks Committee are to erect a pavilion in Spencer Park at an estimated cost of £1,100.

Swimming Baths, Preston.

A scheme for new swimming baths for Preston is to be submitted to the Town Council. It is practically identical with that approved by the Corporation so long ago as 1907, but never proceeded with. The designs are the same and the only alteration proposed, which will raise the original estimate from £16,000 to £17,000, will be the introduction of a filtration and aeration plant.

New Buildings, Glasgow.

Plans prepared by the Glasgow Office of Works have been passed for the erection of a new fire station in Wallace Street, Tiddleston, Glasgow.

The following plans have been approved by the Glasgow Dean of Guild Court: The North British Railway Company, to erect parcel and goods offices in North Queen Street; William Beardmore and Co., Ltd., to erect a tool and store room at Rigby Street, Parkhead; the Hyndlands Building Company and John A. Mactaggart, to erect several tenements of dwelling-houses in Beechwood Drive and Woodcroft Avenue; Shaw, Glasgow, Ltd., to erect a warehouse and shed in Craigmount Street; the Corporation of Glasgow, to erect three four-storey tenements of dwelling-houses in Moncur Street and Main Street; the Mount Florida Property Company, to erect shops and a hall at the junction of King's Park Road and New Cathcart Road, Mount Florida.

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COMPETITION.

Glasgow Improvements.

Mr. A. N. Paterson, A.R.S.A., the assessor in the competition for buildings to be erected at the corner of the Trongate and High Street, Glasgow, recommended the award of the premiums of £50, £30, and £20 to the designs numbered 18, 14, and 12, and at a meeting of the City Council it was found that the authors of these designs were: 1, Messrs. Honeyman and Keppie, Glasgow; 2, Messrs. John McKissack and Son, Glasgow, and Mr. William Friskin, London; 3, Mr. Alexander D. Hislop, Glasgow. The Improvements Committee have recommended that the design placed first shall be adopted, and that its authors shall be employed as architects for the buildings, of which the cost is estimated at £28,512.

SOCIETIES AND INSTITUTIONS.

Royal Institute of the Architects of Ireland.

The new council consists of Messrs. L. O'Callaghan, J. H. Webb, C. A. Owen, G. P. Sheridan, F. Hayes, A. G. C. Millar, G. L. O'Connor, Page L. Dickinson, and R. M. Butler, with the president (Mr. R. Caulfeild Orpen, R.H.A.), vice-president, the ex-president, three past-presidents, Mr. H. Allberry (representing the Architectural Association of Ireland), and the hon. secretary and hon. treasurer.

London Master Builders' Association.

The forty-third annual general meeting of the London Master Builders' Association was held at Koh-i-Noor House, Kingsway, W.C., on December 16, 1914, the chair being occupied by Mr. Walter Lawrence, jnr., president.

The report of the Council for the year was received and adopted. (See below.)

Prior to proceeding with the election of the officers and members of the Executive Council for the ensuing year, an especially pleasing function occurred. In October last, Messrs. Ernest J. Brown and James S. Holliday, both past-presidents of the Association, issued a circular to all members containing the following: "Although the recent 'Trade Dispute' is perhaps nearly forgotten, the members of the L.M.B.A. will not readily forget the services rendered throughout this prolonged dispute by the President, Mr. Walter Lawrence, jnr., who not only devoted his time and energy unsparingly, and consented, at the urgent request of the Council, to extend his term of office for two years, but also protected the interests of the Association with conspicuous ability." The result culminated at this meeting, when Mr. Brown, on behalf of the Association, presented Mr. Lawrence with a handsome silver centre-piece and two fruit dishes inscribed as follows: "Presented to Walter Lawrence, jnr., by the London Master Builders' Association, as a mark of appreciation of his devotion to its interests during his Presidency, 1913-14."

The sentiments expressed by Mr. Brown, who was supported by Mr. Frank May, having been received with acclamation, the President suitably returned thanks, and assured the meeting that the interests of the Association would continue to receive his earnest support and attention.

The following elections were made for the ensuing year, namely: President, Mr. W. F. Wallis, J.P. (Messrs. G. E. Wallis and Sons, Ltd.); Senior Vice-President, Mr. Edmond J. Hill (Messrs. Higgs and Hill, Ltd.); Junior Vice-President, Mr. William Downs, Walworth; Treasurer, Mr. F. Shingleton, M.V.O. (Messrs. Leslie and Co., Ltd.); Hon. Auditor, Mr. C. Elliott (Messrs. Dove Bros., Ltd.); and nine members of the Executive Council to fill vacancies occurring in accordance with the rules of the Association.

From the annual report, to which reference is made above, we give the following extracts:

During the period from the end of January, 1914, until the middle of August, building operations were greatly disorganised in consequence of the trade dispute. Since the outbreak of war, business has necessarily suffered to a considerable extent with respect both to work delayed by the dispute and by preventing new contracts from being entered into.

Parliamentary and legal matters have had the careful attention of the Council.

The negotiations with the Operatives' Societies, which were unsuccessful and culminated in the stoppage of work on January 24 last, referred to in the previous report, eventually led to your Association seeking the support of the National Federation, as the matter was one of national interest. Frequent meetings of all parties were held, and ultimately, at the half-yearly meeting of the National Federation, held at Cardiff in July, a resolution was carried declaring the intention to lock-out members of such societies as had not come to terms on or before August 15 following. On August 6, at a conference with the Administrative Committee of the National Federation, held at the request of various General Executives of unions, the terms last submitted by your Association were accepted, with the understanding that four points should later be submitted to the Augmented National Conciliation Board for final decision. It is probable that the sudden outbreak of war had some influence upon the question of settlement, but it had already been made quite clear to the various Operatives' Societies affected that employers in all parts of the kingdom were determined to maintain the inviolability of agreements. The Augmented National Conciliation Board met on October 13 to consider the four points referred to it for its decision, and passed the following resolutions: 1. As to Disability.—That both parties join the National Conciliation Board and come under the procedure of the Board, and until that takes place or the present agreement is terminated by due notice, the rules suggested by the L.M.B.A. remain in operation. 2. As to Foremen.—That Rule 1 of the General Rules agreed between the National Federation of Building Trades Employers of Great Britain and Ireland, the National Association of Master Plasterers, and the National Association of Operative Plasterers, modified to suit the respective trades, be substituted for the rule as to foremen in the existing Working Rule Agreements. 3. As to Timbermen.—That the rate for timbermen remain at 8½d. 4. As to Overtime Rate for Labourers.—That the rule as signed remain in force.

The valuable assistance of the National Federation above referred to was recognised by your Council on October 15 in the following unanimous resolution:

"That the L.M.B.A. tender their hearty thanks to the Executive Council and officers of the National Federation for their co-operation and assistance freely rendered during the continuance of the London trade dispute, January—August, 1914, whereby that dispute has now been brought to a conclusion. The L.M.B.A. desire that this appreciation shall be conveyed to the various federations, branches, and officials."

Your Council also acknowledges the support accorded by the London Master Plasterers' Association, and notes with satisfaction the affiliation of that body to the L.M.B.A.

Frequent conferences with the Operative Painters' Society have been held, but no agreement has been arrived at, although a rate of 9½d. per hour for decorators and 9d. for painters was offered.

In view of the manifest importance of ensuring continuity in the conduct of affairs during the dispute, the usual procedure under Rule IV. as to election of officers and the requisite members of the Executive Council was postponed, and ultimately, on June 22, at a special general meeting, alterations were duly made to the rules in order to deal more particularly with the question of the officers. At this meeting the four officers were invited to retain their positions, to which they consented, and the new Executive Council was duly elected, the members of which will retain their seats until December 31 [1914], in accordance with the revised rule. In future a half-yearly general meeting will be held in June each year for the purpose of the presentation of the audited accounts for the preceding year ending December 31 and of the half-yearly report of the Council.

The importance of re-organisation, more especially with a view to increasing the power of defending legitimate interests, has engaged and is engaging the attention of a Special Committee, which will in early course make a recommendation to the Council for consideration. It is hoped that some plan will be adopted that will have the effect of still further increasing the membership of the Association.

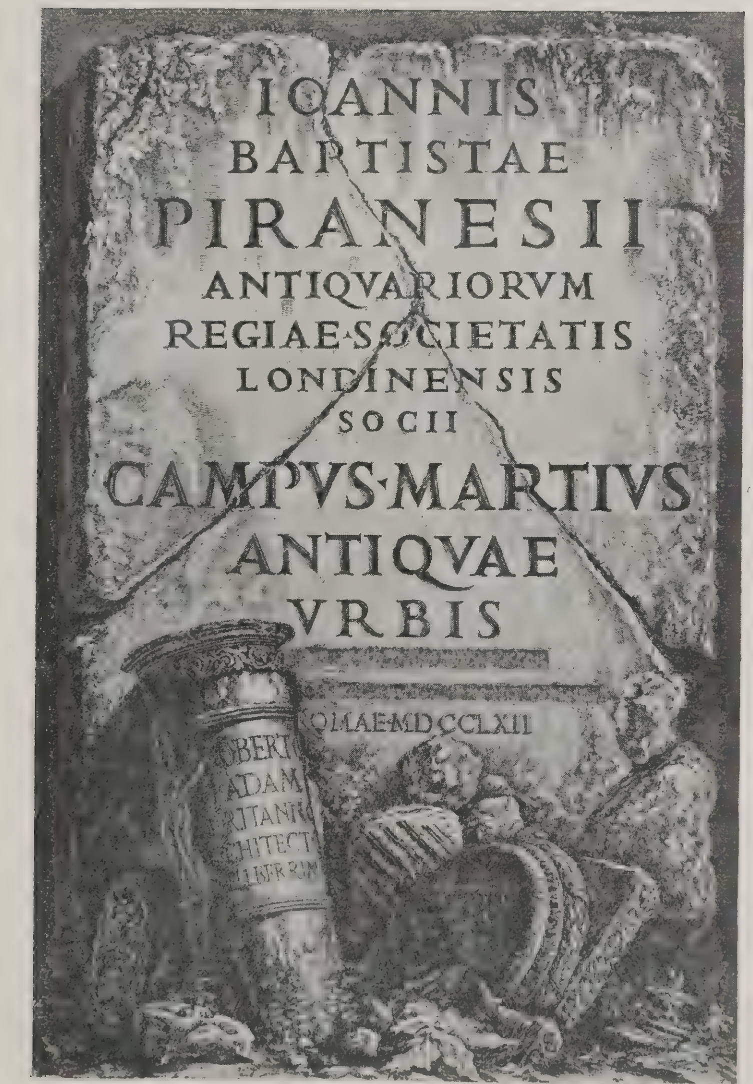
Important conferences have taken place with various Government and municipal bodies upon matters of great import, such as the effect of war on contracts, etc. Interviews were granted by the Treasury, Local Government Board, L.C.C., and other bodies, when the views of your Council were laid before them. A conference was also held with the representatives of the trade societies with whom working rule agreements exist upon the question of working shorter hours during the period of the war, but no conclusion was reached. The important question of a standard rate for day-work charges has received the careful attention of the Practice Committee, and it is hoped that shortly the schedule which has been approved by your Council will be adopted by the various bodies who are interested in the direction named. The Association has sustained loss by death during the year of the following respected members, viz., Messrs. Charles Wall, Thomas Holloway, and Joseph Hill, the first-named having filled the position of president in the year 1900.

At its meeting held on November 19, the Council resolved to abandon the annua dinner, owing to the war. The Counci unanimously decided to vote a sum o money [approximately £500] for the purpose of providing some winter comforts t those who are fighting for us at the Front amongst whom are many employees of ou members. Arrangements were made fo socks, mittens, and mufflers to be sent ou at once, packed separately in envelopes and containing a card of good wishes fron this Association, to the number of approximately 7,000 for the Army and 1,000 fo the Navy, and these were sent to Londo regiments, or regiments closely connecte with London.

THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, January 13, 1915. Volume XLI. No. 1045.

No. 118.



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 13, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1045.

EDITORIAL.

ALTHOUGH the Lumsden case was left indeterminate by the seesaw judgments in the lower courts, followed by an equal division of the four law lords who, in July last, heard the final appeal, it is likely, after all, to result in the measure of relief which was the object of the litigation in which Mr. Lumsden has so courageously persevered. Mr. Ernest G. Pretyman has made public a letter from Mr. Lloyd George stating that the Government "are prepared to instruct the Inland Revenue to hold in abeyance cases [of claims for Increment Value Duty] in which the relief claimed by the taxpayer is such as would have been granted under the legislation promised by the Prime Minister. Such cases could then be allowed to stand over until a date to be hereafter fixed." This, while reassuring up to a certain point, is obviously subject to the vagaries of official interpretation, and is at best a belated acknowledgment of the bad drafting of an Act that, in this matter, negatives the professed intention of its author. Surely the relief now offered should have been given effect in advance of all the costly and troublesome litigation and embarrassment to which official and legal interpretation has given rise.

* * * *

It is as long ago as 1912 that the case first came before the courts. Mr. J. R. Lumsden, a Newcastle builder, put up a house-and-shop, upon the subsequent sale of which he was charged £25 as increment value duty under the Finance (1909-10) Act, although it was admitted that the site value had not changed. To the lay mind this view seemed not merely iniquitous but absolutely absurd; and not to the lay mind only, for Lord Moulton said, in the House of Lords, "One must have lived outside the ordinary life of educated people in England to suppose that any Government or any Legislature could have called such a tax a tax on the increment of the site value of land." It was thought by the Lord Chancellor, however, that "Parliament must, on the literal construction of its language, be taken to have contemplated something more or something less than site value strictly so called." Between the more and the less, the revenue officials were not at all likely to embrace the fate of Buridan's ass, which starved for lack of means of a logical choice between two equally attractive bundles of hay; they cheerfully went for the "more," which, to do them justice, was the course they were bound to take.

* * * *

A regrettable accident of the war is the collapse of the competition for a proposed Shakespeare Memorial Theatre. In July last the Shakespeare Memorial Committee invited architects to submit photographs or drawings of important buildings they had erected or designed, the object being to select from the senders six architects to take part in the final competition. Mr. T. E. Collcutt was appointed assessor, and as his is a name to inspire every confidence, there is no doubt tha the response imposed an enormous amount of worl upon him. We regret to find that, in consequence o the war, all this trouble has been presumably brough to naught. In a circular letter dated January 21, Mr. Gollancz, the hon. secretary of the committee, inform the competitors that it has been deemed necessary " leave the whole matter of the proposed Shakespear Memorial Theatre in abeyance."

* * * *

It is the fortune of war; but the result is neverthteles deplorable, and we are told by some of the compet tors that in their case the disappointment is the mor acute for what they consider to be unnecessary dela in returning their drawings. These, it may be remem bered, were to be sent in by the middle of Septembe last, and thus have been kept for more than thre months. Presuming, however, that the entries were a numerous as the importance of the competition woul suggest, it is clear that the assessor had no light tas which, we infer, he had finished, for it is stated in M Gollancz's letter that the report was in preparatio when the committee found itself unable to procee The sympathy which we naturally feel for the com petitors we would extend to the committee, who, are sure, would be only too glad to see the matt through. Postponement does not imply abandonme of the project, which we trust will ultimately culmina in a monument worthy not only of Shakespeare but the national spirit of which his name is the foremo symbol. Time presses, however, and if the theatre to be ready for the tercentenary celebrations next yea the work must proceed at once, and be prosecute energetically.

* * * *

Every possible means should be taken to convin the public that this is no ordinary memorial, and th failure to seize so great an occasion of demonstratin the national courage and resource in times of adversi would be humiliating, whereas realisation of the pr ject would be a monument for all time to the indomi able spirit which, not without warrant, is our nation boast. Feeling rather keenly that this is a matter which, to a considerable extent, the national credit at stake, we venture to suggest that it ought not to left entirely to private endeavour—that the City Co poration, the wealthy City companies, the Lond County Council, and even the Government, might ve reasonably, and upon several legitimate grounds, approached with the object of averting a lamenta "lame and impotent conclusion."

* * * *

The vagueness and mysticism that infest discours on art did not begin with Reynolds nor end wi Ruskin. Imaginative writers, to whom this subje

ıakes an almost irresistible appeal, have the
eculiar knack of dogmatising without defining, and
ıe more one reads them the more they elude us. They
re the Will-o'-the-wisps of authorship. At the first
ading of the presidential address delivered by Mr. R.
aulfeild Orpen to the Architectural Association of
eland, and published in our issue of December 23,
ıe gathers a general impression of what the author
ould be at, but reperusal has the curious but not
ıexampled effect of rendering his meaning less clear.

* * * *

At the very outset, Mr. Orpen lands us in the vasty
ane of an imaginative supposition that "if, indeed,
tists could invent a medium only understood by
tists, much of the confusion in regard to what art
ally is would not exist." But, alas! as Mr. Orpen
ıthetically reminds us—because we were in so much
ınger of forgetting it!—the artist is foredoomed by
ı inexorable fate "to employ a medium of expression
telligible to those to whom he appeals." Pity the
tist's hard case! To be tangible and intelligible is
ıhorrent to the artist, whose soul is like a star, and
vells apart. To be understood is to be obvious, to
discovered; and the discovered artist is undone—
is as a sucked orange, and sh ll retain no more
terest than a solved enigma at a New Year party.

* * * *

Mr. Orpen, then, does well to be obscure, to spin, as
merson said, cobwebs, and not cloth, to demand
tter bread than is made of flour, better buildings
an are fabricated of bricks and stone. His aërial
ghts are graceful and charming; but one could wish
at he had refrained from throwing so many smoke-
mbs, which, so far from indicating the dispositions of
ose of us who labour and languish in the trenches, do
t make the atmosphere murky, alike for friend and
e. It is a smoke-bomb which he casts at the present
sition of architectural education. "Danger," he
ys, "lurks in the call for efficiency," and one of his
odern instances is that "our architectural schools are
ımpeting the success of their students, turning out
ores of them steeped in scholarship, prodigies of skill
the delineation of design, young men who will sweep
the great architectural competitions before them,
st because they can produce that which the public—
d even the great majority of architectural assessors
can appreciate, namely, the outward presentment,
evidence of scholarship." Truly a grave national
ril! Yet Mr. Orpen would by no means prefer the
dence of ignorance; for he had previously said,
cholarship—that is, excellence in the manner of
esentation—I hold in the highest esteem; but it must
regarded as a means of expression only."

* * * *

Here, except in the rather dubious definition or
imitation of scholarship, we are heartily at one with
n. No sane person—especially no sane architec-
al educationist—regards scholarship as anything
re than a means to an end. True, its mere posses-
n is what Mr. Andrew Lang would have called "a
arate ecstasy"; but an ecstatic state is not the be-all
l end-all of the architect, although it may be that of
artist imagined by Mr. Orpen in his yearnings for
ıe fourth dimension for the expression—or is it the
-expression?—of the artist's spiritual side. Scholar-
p, according to the lexicographers, implies accurate
l well-disciplined learning, and this definition, unlike
Orpen's, at least provides a good working
oothesis for those to whom the gospel of work well
ıe is more precious than vague if splendid visions,
l who, if such an unnatural divorce were necessary,
t certainly is not, would prefer to be clearly intelli-
le rather than vaguely emotional.

* * * *

But happily the choice is not between these extremes; for it would be absurd to assume that real scholarship is in any way inimical to spirituality, to which, indeed, its constant aim is to give gracious corporeal form. Scholarship, efficiency, facility, accomplishment—call it what you will—is an essential instrument of artistic expression, and while spirituality is the effectual leaven of all good architecture, scholarship is its mould. All that can be in question, therefore, is the method of obtaining it. Inigo Jones, Wren, Adam, Cockerell, and many another, finding it essential to the development of their genius, were forced to get it by hook or by crook, just as they were forced to take long journeys by tedious means of travel; but to-day all the data that they sought with so much labour and difficulty—and much more also—are easily accessible in the schools; and to complain of the avidity and success with which young architects are availing themselves of modern organisation and resources is to beat the air. We agree with Mr. Orpen that danger may lurk in efficiency—or, as we should prefer to say, in facility—but there is much more peril in the inefficiency which is the only alternative. Your untutored genius is as purely a myth of the imagination as your genius stultified or stifled by scholarship, and we must confess to feeling a certain degree of ennui at the constant drizzle of depreciation of the schools which is the one common characteristic of all such as are wont to unload their bosoms of their hopes and fears for art. But, after all, these plaintive bleatings in the wilderness can do no harm to education. Rather they promote it by affording inferential and disinterested testimony to its worth.

NEW EDITION OF "SPECIFICATION."

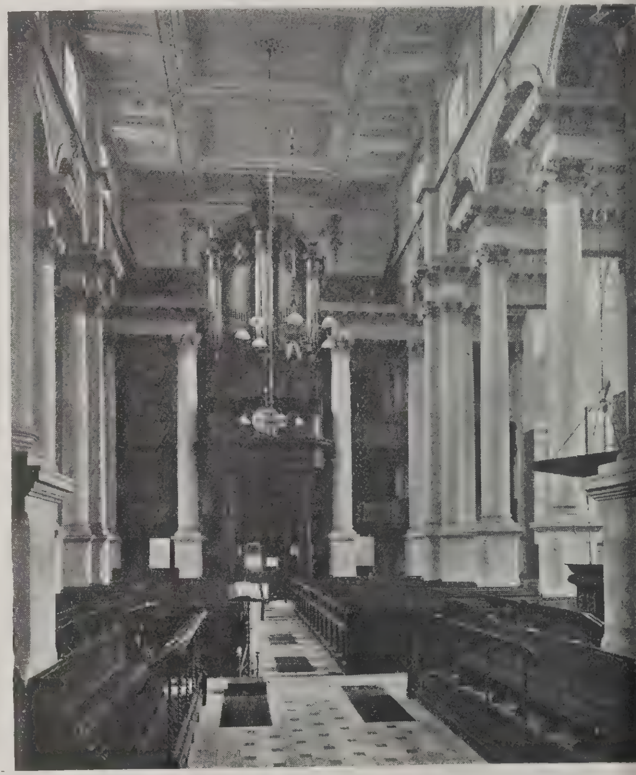
IN preparing the new edition of "Specification," which is now ready, the special conditions created by the War have been kept well in view, and prominence is given to subjects that are intimately associated with current requirements. In furtherance of the Government advice to public authorities to put in hand as much building as possible in order to prevent unemployment, there are most opportune and useful articles on the three classes of buildings chiefly involved—hospitals, schools, and cottages. The first of these, entitled "General and Military Hospitals and Sanatoria," summarises the general principles of hospital construction, and reproduces the plans of a temporary military hospital, as well as those of pavilions and sanatoria prepared by the Local Government Board as suggestive models. In "The Newer Views of School Building," valuable official and other data have been collected, and views and plans are given of schools of most recent type. In view of the Government proposal to spend some four millions sterling on housing, the article on "The Problem of Cheap Cottages," which is illustrated with Local Government Board model designs and details, and with reproductions of the remarkable cottage built for less than £90 by Mr. W. J. Swain for Messrs. Rowntree at York, and of some of the handsome dwellings designed by Messrs. Adshead and Ramsey for the Duchy of Cornwall Estate at Kennington. Among other useful and interesting features newly introduced into this volume are an article on "Specification Preliminaries and Contract Contingencies," which contains valuable provisions, drawn from practical experience, against many contingencies of which both architect and contractor are apt to lose sight in arranging a contract; a detailed description (illustrated) of a new steel bell-frame designed to ensure the stability of bell-towers; and an authentic comparison of the two chief systems of vacuum and turbine cleaning. The general contents of the volume, which render it the most comprehensive and authoritative work of reference for all who have to deal with the details of building and the kindred professions and trades, have been revised, the "Concretor" and "Electrical Engineering" sections, in which progress is more than commonly rapid, having received special attention. These two sections alone, affording as they do the most useful and up-to-date information anywhere to be found on their respective subjects, would render the volume invaluable; but it is also a complete compendium for all departments of building and municipal engineering, including, as it does, all the building trades, and a mass of information on waterworks, roadmaking, sewering, etc.

HERE AND THERE.

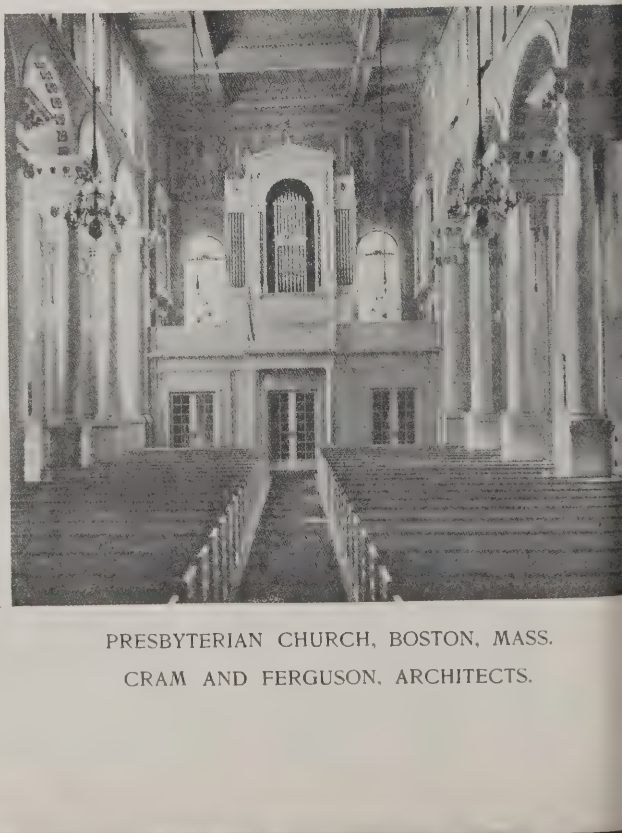
MORE than once in these columns I have discussed the question of architectural "inspiration." I believe I have gone so far as to say that the repetition of an old thing possessing merit is better than the creation of a new thing whose only virtue is novelty: but I have also, on other occasions, said that best of all is the using of an old thing with just sufficient individuality to make it one's own. Such utterances are well enough when considered merely as essays in architectural opinion. It is when specific examples crop up that one becomes disturbed. Here is the latest instance. The well-known firm of American architects Messrs. Cram and Ferguson (formerly Cram, Goodhue, and Ferguson) have just completed a Presbyterian Church at Boston. I know nothing of the wishes of their clients or of their own views on the matter, but, looking at the illustrations of the church in the last issue of "The American Architect" I could not fail to recall at once Christ Church, Spitalfields, built from Nicholas Hawksmoor's designs in 1714-1729. I have thought it of interest to juxtapose illustrations of the two interiors. The comparison is striking. There is the same system of arcaded bays to the nave, with columns carried on detached pedestals, the same clerestory divided up by pilasters, the same treatment of the west wall behind the organ, and the same treatment of the ceiling compartments. The organ only is different—and an improvement, as, too, is the east end of the church, where there is no entablature beam across the chancel arch—a feature that disfigures Hawksmoor's design. Nevertheless, the source of inspiration is obvious. And I must say that the sight of this new Boston church gives me a mild shock. It makes one think that the whole art of seeking inspiration in the work of the past consists in utilising the unfamiliar examples!

* * * *

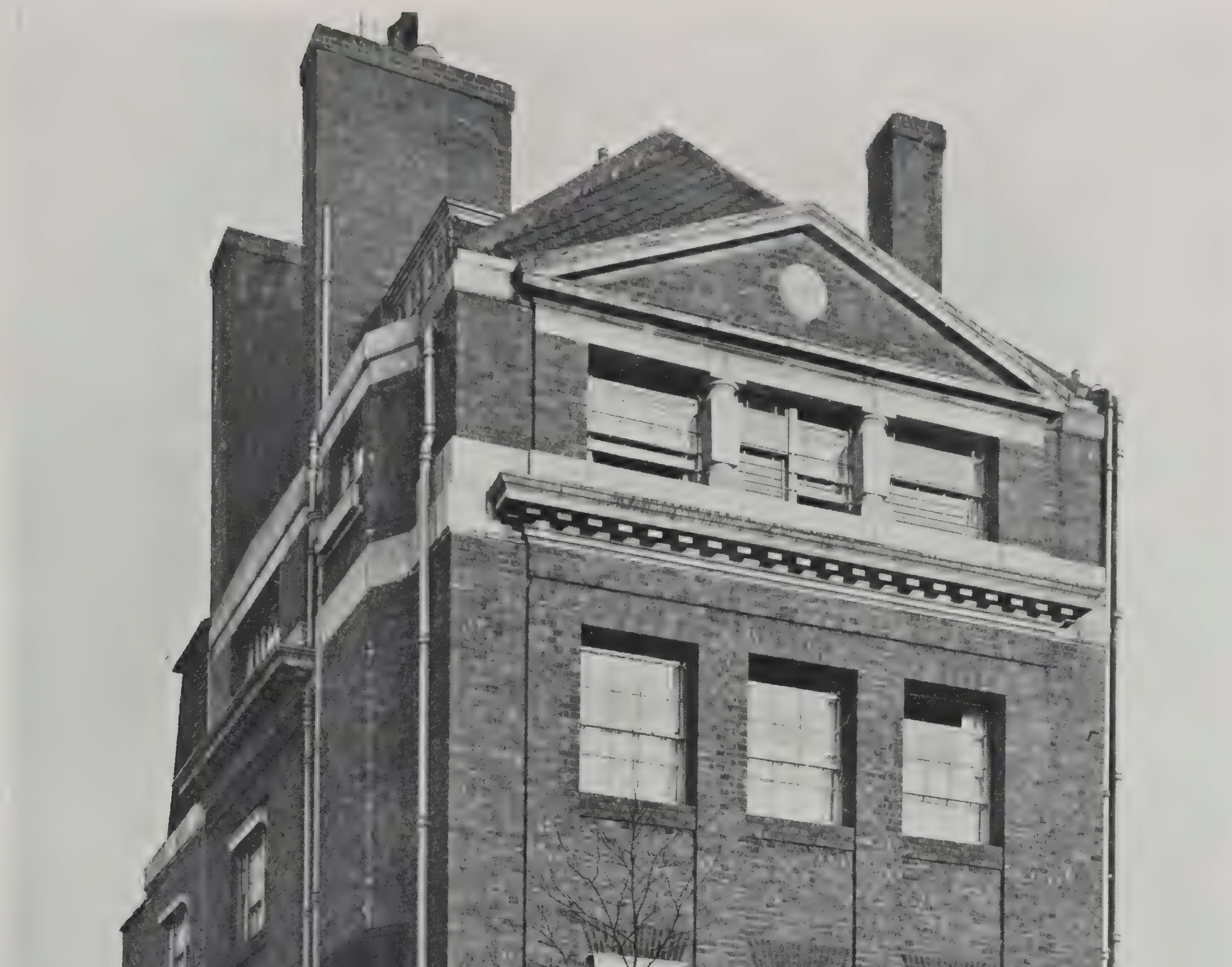
Though it is premature even to give a thought to them now, in due time we shall have to consider National Memorials commemorating the Great Peace, and there must be something better than our National Memorial to Queen Victoria in front of Buckingham Palace. Thirteen years have past since the competition for that scheme was held, and three since the Kaiser came over to pay affectionate tribute to his grandmother by unveiling the Memorial, yet only within the past week or two has the work been brought almost to completion by the erection of Sir Thomas Brock's four colossal bronzes on the pedestals at the foot of the steps: "almost," one says expressly, for there are still two groups to be placed on each side above the fountains, and it is said that "these may not be finished for perhaps two years." However, these four new bronzes bring the Memorial within one stage of completion. And here let it first be noted that the name of Sir Aston Webb is incorrectly associated with this prodigious mass of marble. His, it is true, was the design selected in competition, but the inscription on the west side clearly states that "This Memorial was designed and executed by Thomas Brock, R.A." Sir Aston Webb was responsible only for the architectural surroundings—the encircling balustrading next th parterres, the piers, and the lay-out of the new Mall with the Admiralty Arch at Charing Cross; and I ca never think of the matter without regretting that hi competition scheme was so whittled down. It woul have given us an enclosed garden in which to contemplate the Memorial in a fitting way, whereas, as thing are, we must either survey it with an endless procession of taxis flitting between, or else take the hazar and dash across a wide piece of roadway to the have of the surrounding pavement. Here one finds step leading up the Memorial, and I have often wondere why they were formed. One does not want to wal in and out of a Memorial like this, and even if th existence of the steps presupposes that one has such desire, there is a chain across to prevent one doing so



CHRIST CHURCH, SPITALFIELDS, LONDON.
NICHOLAS HAWKSMOOR, ARCHITECT.



PRESBYTERIAN CHURCH, BOSTON, MASS.
CRAM AND FERGUSON, ARCHITECTS.



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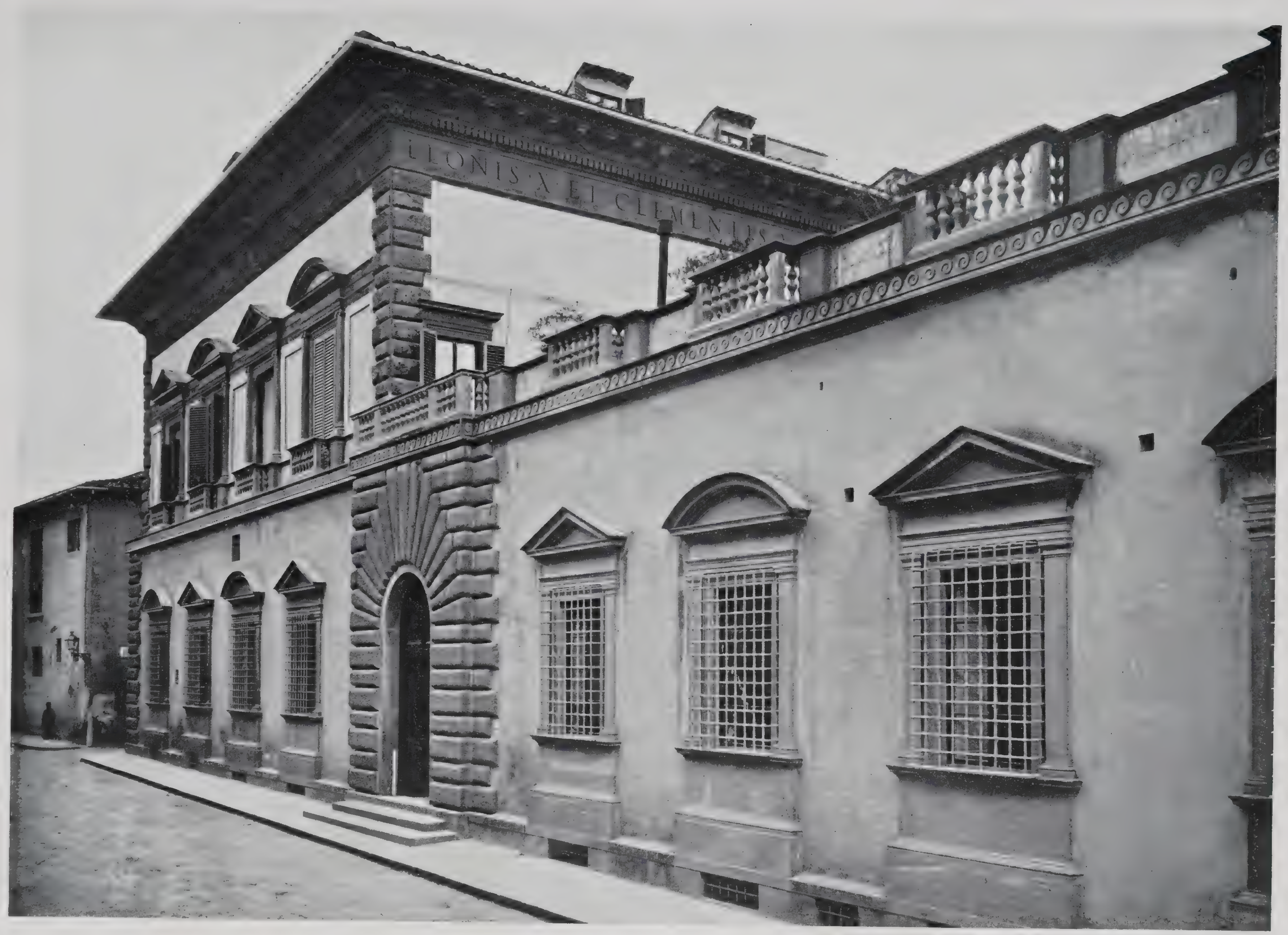

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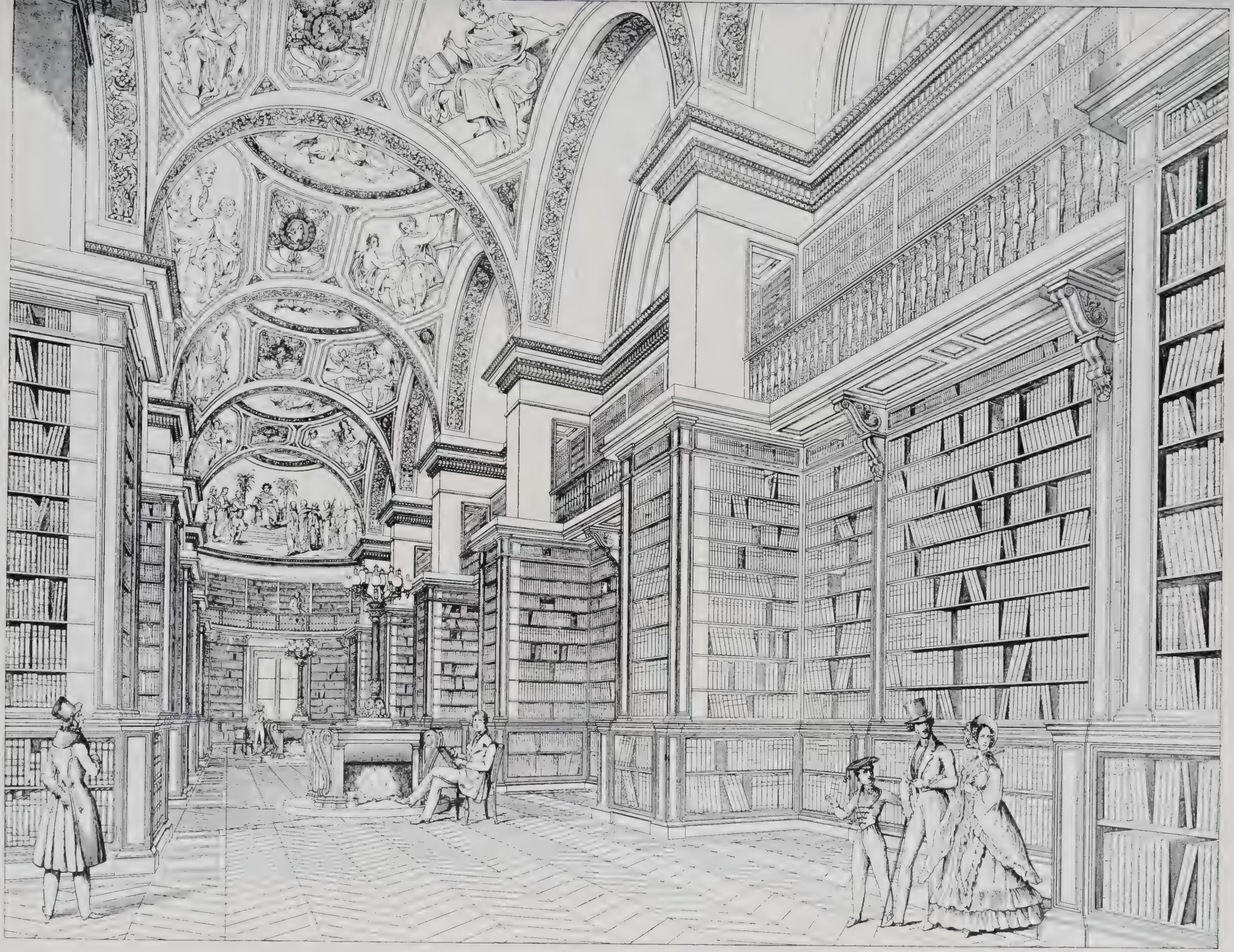

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JULES DE JOLY, ARCHITECT.

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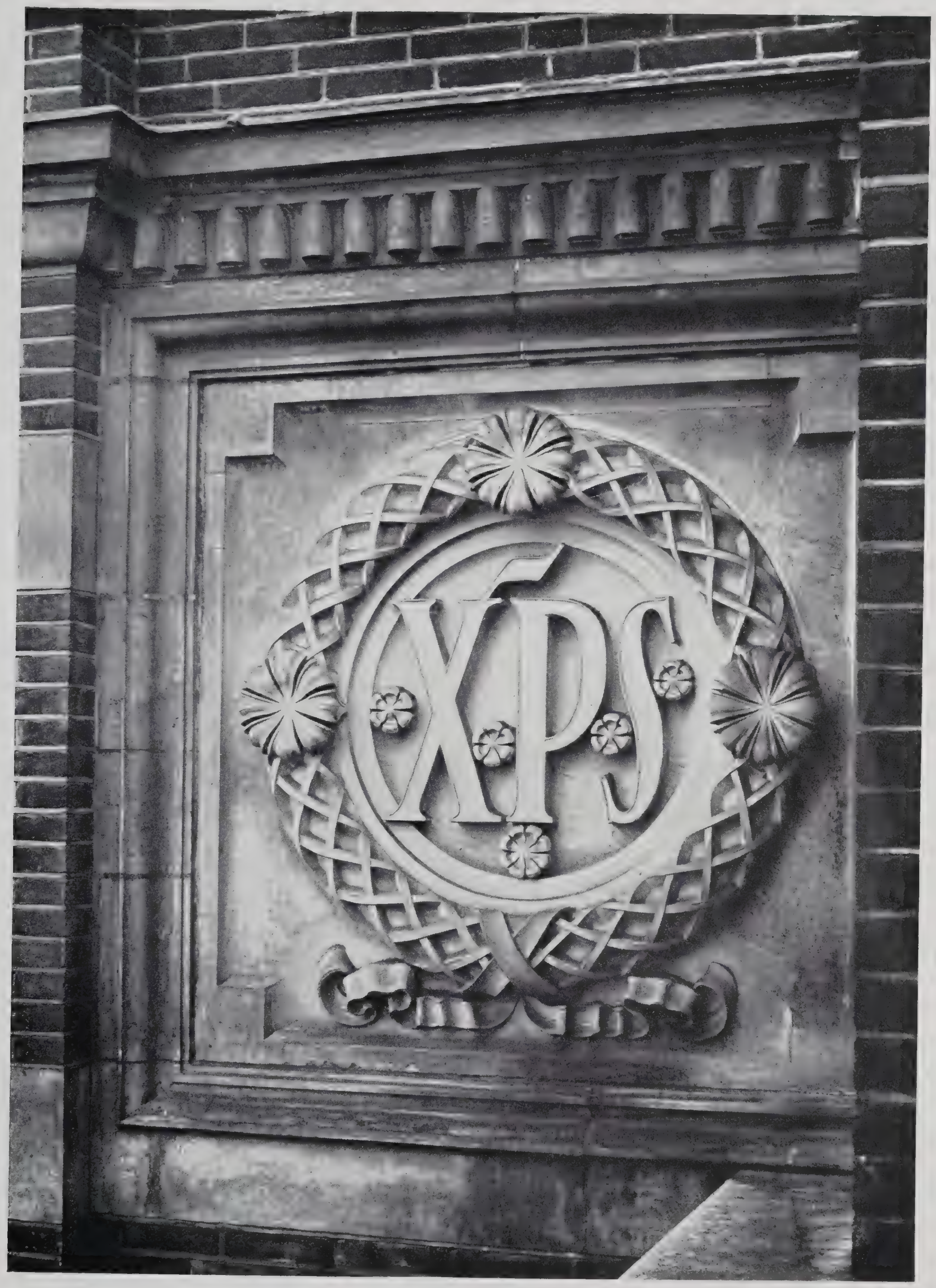

DETAILS OF CRAFTSMANSHIP. II.—TERRA-COTTA PANEL ON NORTH WALL OF SANCTUARY, WESTMINSTER CATHEDRAL, LONDON.
J. F. BENTLEY, ARCHITECT.

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Sir Thomas Brock's new groups each comprise a good British lion with an attendant figure keeping :harge of him with a touch of the finger. Facing Buckingham Palace, on one pedestal, there is a woman of the fields with a sickle and a sheaf of corn, symbolising Agriculture, and on the other a blacksmith, typifying Labour, whose boots, leathern apron, and substantial pincers are so realistic that one can appreciate the feelings of Samuel Pepys, who was impelled ' again and again " to brush off the rain drop on an apple in one of Hondecoeter's "still-life" pictures. These two figures are admirably modelled, and in their realism they recall the work of Dalou and other French sculptors. And they are essentially of the People. The figures on the other two pedestals belong to the Aristocracy of the Studio, the one a female figure bearng an olive branch, the other the figure of a man at arge with a torch. These, also, are well modelled, but they are more like the customary article that is supposed to be required as symbolistic sculpture. Altogether the four new bronzes are the most interesting pieces of sculpture round and about this much besculptured Memorial.

* * * *

Sir Thomas Brock has been recapitulating to a Times" representative the underlying symbolism of his scheme. "The great base, with its gleaming waters, its sculptures of tritons and mermaids, seahorses and porpoises, emphasises the maritime oundation and commercial greatness of our Empire, a suggestion enforced by the boat-prows at the angles of the central Memorial; the reclining allegorical igures above the fountains typify the courage and visdom of the people, in figures indicating the Navy nd Army and Science and Art. The central Memorial —with its great statue of Queen Victoria, its groups epresenting Truth, Justice, and Motherhood, its owering angel of Victory, and its eagles of dominion —expresses the qualities of the Queen and of her eign. It is left for the statuary now added to complete the expression of the qualities of the people—heir love of peace, their desire for progress, and their abour." All of which sounds appropriate in a guidebookish way. But to my way of thinking it is Form, ot Symbolism, that should have the greater attention, nd it is in qualities of Form that the Memorial is leficient. No amount of labelling will make up for his, for whether you call one group Fortitude or The Glory of Work, Victory or Fame, everything depends n the Form itself and its relation to surroundings.

UBIQUE.

THE PLATES.

No. 1, Dean Trench Street, Westminster.

THIS town residence is at the corner of Tufton Street and Dean Trench Street—which leads into Smith Square, Westminster, from the west side. The façade is carried out in Crowborough stocks, with Portland stone dressings, and a pantile roof. It displays a breadth of treatment which comes as a relief to the fussiness of much modern work. Mr. H. S. Goodhart-Rendel was the architect. The builders were Messrs. Whitehead and Sons.

Medical School, "Bart's."

The façade of this building is of interest not only in itself but also as an exceptional example carried out at a time—1878—when classical work was generally very mediocre. It is unquestionably the best piece of architectural design among all the additions that have been made to "Bart's."

The Pandolfini Palace, Florence.

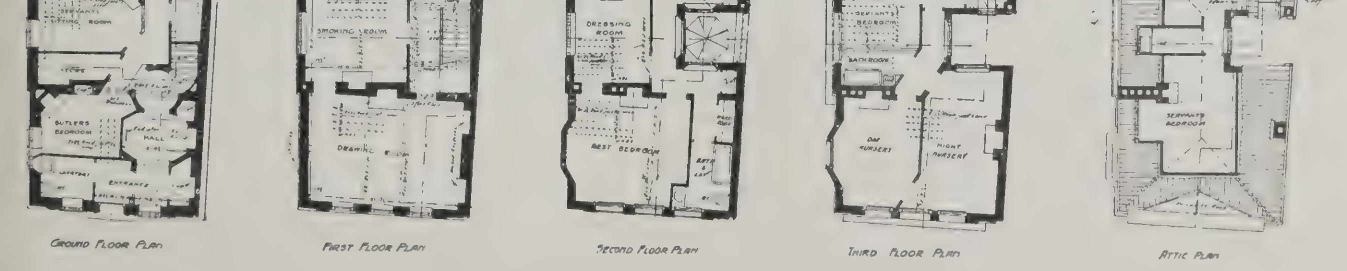
The Pandolfini has not the ruggedness of some of the other Italian palaces, the façade being cemented over and masonry blocks used only around the entrance and as quoins. The admirable cornice, the frieze below with its fine Roman lettering, the fenestration, and the balustraded balconies all merit close study. The building has not the usual Italian *cortile*, being grouped at one corner of a roughly rectangular site, the remainder of which is laid out as a formal garden. The Pandolfini was erected about 1530 by Francesco da San Gallo, who is said to have been assisted by his brother Bastiano.

Library in Chambre des Députés, Paris.

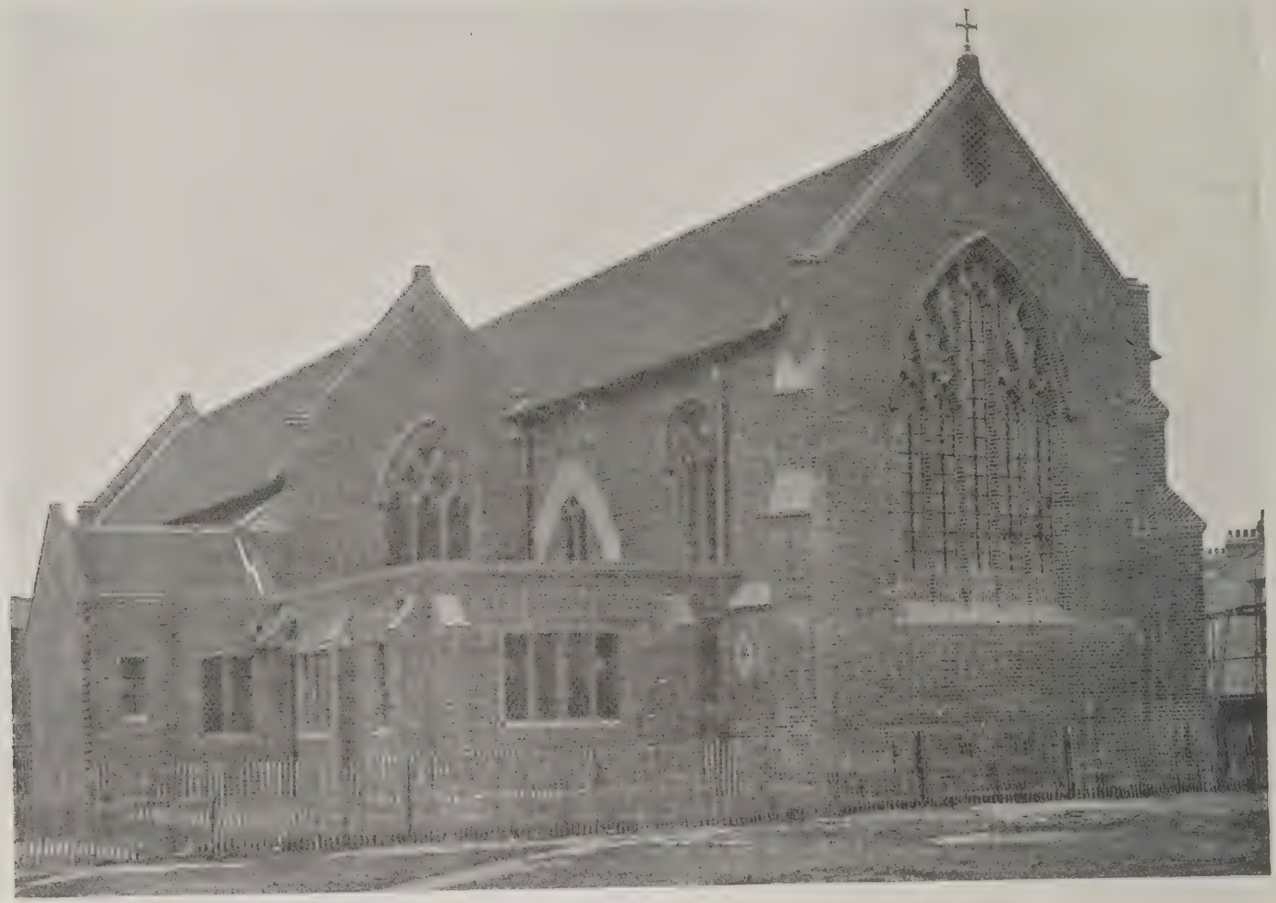
The Chambre des Députés, otherwise known as the Palais du Corps Législatif or the Palais Bourbon, and now used as the French Senate, is a building which has been much altered and added to at different dates, especially by Jules de Joly, architect to Louis Philippe. Among the latter's work is the great Library, shown on the plate. It is embellished with ceiling paintings by Eugène Delacroix.

Terra-Cotta Panel, Westminster Cathedral.

The resource of the late J. F. Bentley in the design of detail was no less astonishing than his ability to deal with large architectural schemes involving difficult problems of construction. Westminster Cathedral offers abundant evidence of this. Terracotta is here extensively employed with the brickwork. The panel we illustrate is on the north wall of the



No. 1, DEAN TRENCH STREET, WESTMINSTER. H. S. GOODHART-RENDEL, ARCHITECT.

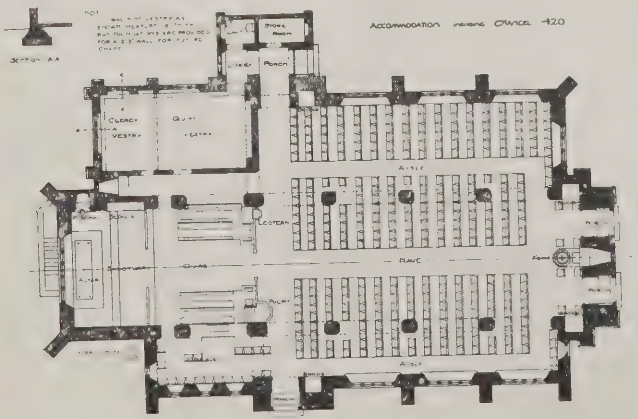


ST. MARGARET'S CHURCH, ILFORD. EDWIN T. DUNN, LICENTIATE R.I.B.A., ARCHITECT.

sanctuary. The wreath encircling the Greek symbol of Christ is finely treated, being both vigorous and graceful. The coarseness of the dentils above is all the more noticeable on this account.

St. Margaret's Church, Ilford.

In carrying out this church it was, unfortunately, found necessary to reduce the estimate by £1,000, and the original design had in consequence to be modified. An important economy was effected by the substitution of brick tracery, coping, and buttress caps in lieu of stone. With the assistance of Messrs. James Brown (London), Ltd., of Essex Wharf, Whitechapel and Brentwood, it was found possible to execute every detail in red brick, the tracery preserving exactly the original stone details; the result being a great credit both to the architect (Mr. Edwin T. Dunn, of Ilford) and to the manufacturers. The church provides seating accommodation for 402 worshippers, and for twenty-six in the choir. The length, east to west, is 96 feet, the width over the aisles being 53 feet. The contractors were Messrs. Hammond and Miles, of Ilford. The contract amounted to £4,300, including fencing around three sides of the church. The heating and ventilating was carried out by Messrs. Hobbs, of Hampstead, and the electric lighting by Mr. C. E. Porter, of Ilford.



Working Drawing of Guaranty Trust Building, New York.

Four splendid columns, with entablature, mark the main entrance to the fine new building which has been erected in Broadway, New York, from designs by Messrs. York and Sawyer. One of these columns, with details of its setting out, is shown on the drawing which we publish this week. A working drawing of the complete façade was published in our issue for February 11, 1914. The exterior is carried out in grey granite.

CORRESPONDENCE.

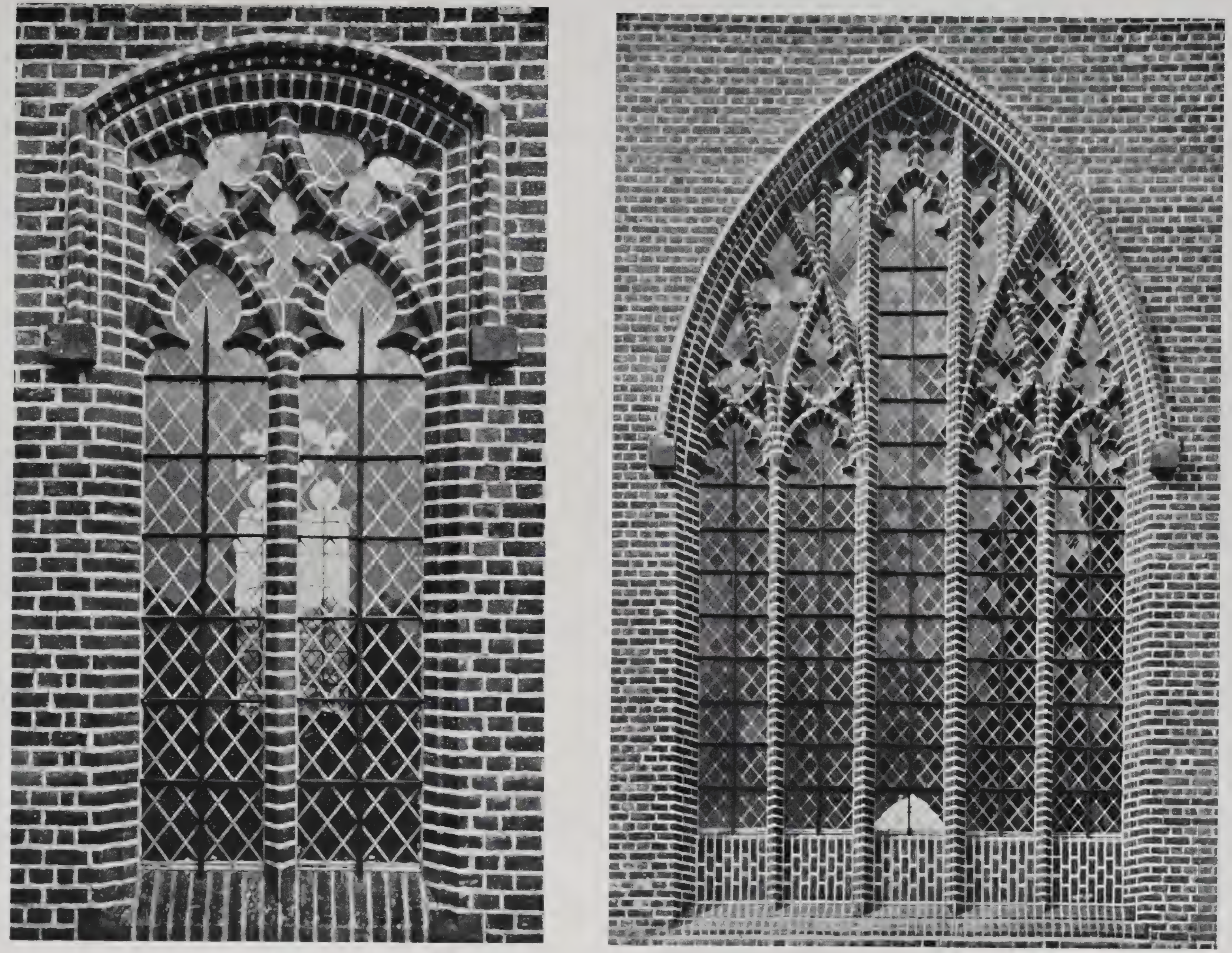
The Editors disclaim all responsibility for the statements made or opinion expressed by correspondents, who are asked to be brief, and to write on one sid only of the paper. Every communication must bear the name and address o the sender.

Modern German Architecture.

To the Editors of THE ARCHITECTS' AND BUILDERS JOURNAL.

SIRS,—I quite agree with Mr. Briggs in disliking the Leipzig War Memorial, because I think the idea of it rude and silly; but I should be glad to believe that an English architect could express a reasonable meaning as directly and simply as Herr Schmitz his little bit of national brag.

Critics would probably be well advised in leaving modern German architecture alone until after the War when I hope that we may find that we have not los the power of fair judgment. Recent works of the enemy's building are very apt to mean something— rather a rare quality; and there is much in thei modern school which, under civilised guidance, migh



Side Window to Chancel.

East Window.

CURRENT ARCHITECTURE. XCVIII.—ST. MARGARET'S CHURCH, ILFORD, ESSEX.

EDWIN T. DUNN, LICENTIATE R.I.B.A., ARCHITECT.

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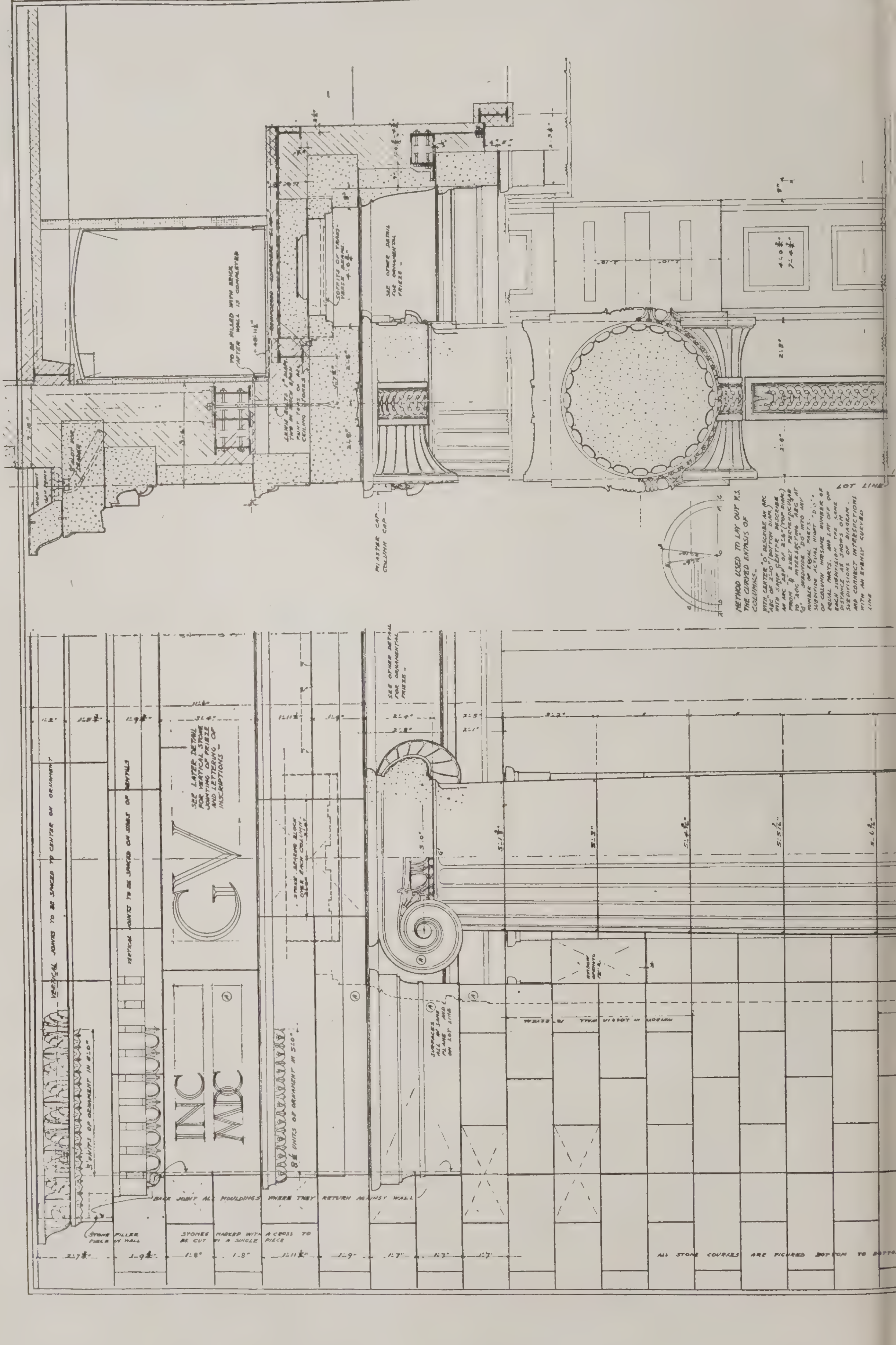
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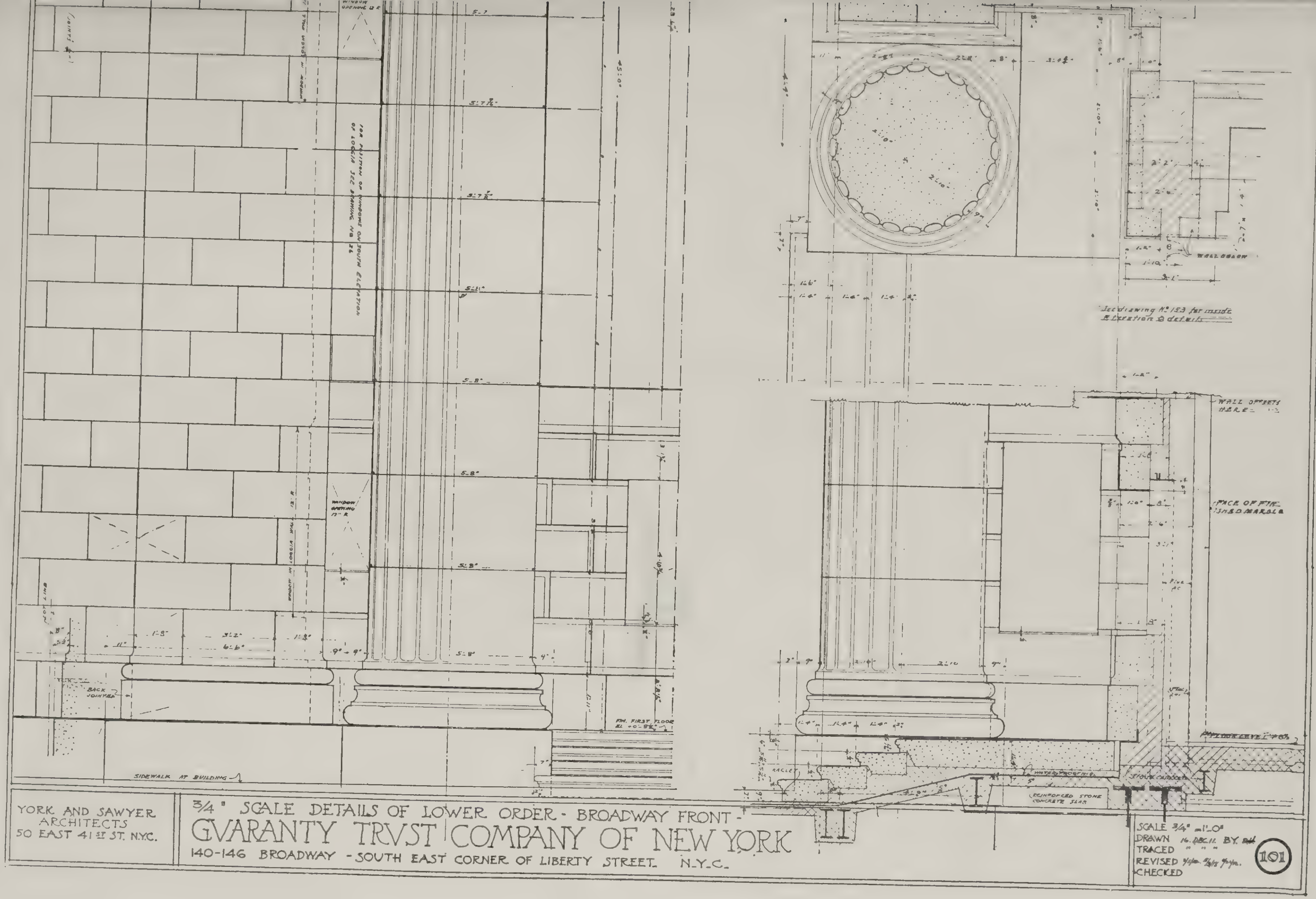
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See drawing No. 153 for inside Elevation & details
WALL OFFSETS HERE
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FOR POSITION OF WINDOWS ON SOUTH ELEVATION OF LOGGIA SEE DRAWING No. 26
FIN. FIRST FLOOR
SIDEWALK AT BUILDING
BACK JOINTED
REINFORCED STONE CONCRETE SLAB
45'-0"
4'-9"
2'-10"
2'-6"
5'-8"

WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (SERIES II.). I.—GUARANTY TRUST BUILDING, NEW YORK: DETAIL OF LOWER ORDER, MAIN FAÇADE.

YORK AND SAWYER, ARCHITECTS.

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bear good fruit. In the eighteenth and nineteenth centuries they failed in the hopeless task of appropriating the forms developed by nations whose intellectual and artistic standard was higher than their own. In mediæval days they caricatured foreign models with the same unconsciousness. Their recent return to elementary forms has given them their chance of sincerity, a chance of which they have fully availed themselves, in the opinion of many.

Let us hope that this War will give to all able German artists something less barbarous and vulgar to express than they have found hitherto. It is too much to expect that defeat in arms will bring to the nation the sense that it chiefly lacks—that of humour. The priggish scholarship of Schinkel and the stupid coarseness of Schmitz (in music of Reger or of Strauss) will always be accepted by the Teuton until he learns that it is such things that make other nations smile. But the national genius for the homely grotesque—the fairy-tale spirit—is a good thing, and a thing that Latins have not.

Humperdinck in music, Hoffman in architecture; these are two fine artists (and there are others), who attempt exactly that for which they are fitted by their nationality. We may learn from these; if buildings were portable we might well strive to bring some of Hoffman's work to London as a prize. Of the rest, I am inclined to prophesy that when the Prussian delusion is shattered they will mend their ways.

H. S. GOODHART-RENDEL.

[We congratulate Mr. Goodhart-Rendel on the chivalry which has prompted him to assume for a moment the thankless *rôle* of devil's advocate. Super-patriots will forgive him on observing that he has cursed the Germans rather more effectually than he has blessed them. For aught he shows to the contrary, the strength of their case rests on the sincerity of their brutality, and on their addiction to fairy tales, to say nothing of Humperdinck's music. One rather suspects our correspondent of sly exercise of the sense of humour in which the Germans are unhappily so utterly deficient. But we cannot agree that criticism of any form of German brutality should be postponed until the war is over. He would not like to see us jumping on a fallen foe.—EDS. A. AND B.J.]

Bell-Frames and Bell-Towers.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I was much interested in your description of the patented bell-frame of Messrs. John Warner and Sons, Ltd., in your issue of December 9, but regret that I was unable quite to grasp the meaning of the paragraph dealing with the forces set up by the ringing of the bells. In dealing with this question it is necessary for architects to distinguish carefully between finite forces, which can easily be measured, and impulsive forces or blows, which cannot be measured, except by the amount of momentum destroyed.

In the case of a bell being rung in the usual way, that is, making complete revolutions, the reactions on the axis of revolution are as follows:

(*a*) A finite force due to the weight of the bell and the centrifugal force. The horizontal component of this force reaches a maximum which is approximately twice the weight of the bell. The vertical component has a maximum which is approximately four times the weight of the bell.

(*b*) A small impulsive force due to the blow of the clapper on the bell, which acts very nearly vertically downwards and is quite negligible in comparison with the other forces concerned.

The only force which need be taken into account, as far as the tower is concerned, is the horizontal component of the finite force.

Now, if the bell-frame be practically rigid in all three dimensions, the reaction on the tower is the same as the reaction on the gudgeons, and the architect knows what he has to allow for. If it be not rigid, two things may happen.

1. If the frame have any appreciable spring in it, energy is absorbed by the frame and may be accumulated after successive revolutions of the bell, if the period of oscillation of the frame gets "in step" with the bell. Thus a much greater reaction may be produced on the tower than in the case of a rigid frame. This is analogous to a person walking along a thin plank supported at its ends and getting "in step" with the plank. If such a frame be too near the walls so that the moving part of the frame comes in contact with the tower, there is also an impulse which may seriously damage the masonry.

2. If the frame through bad design, bad workmanship, or neglect becomes loose in any of the joints, then the finite reaction (*a*) may set up a serious impulsive reaction similar to the "knock" of a reciprocating steam-engine when the brasses get badly worn or the bed becomes loose.

So that the safest form of frame is one that is as rigid as possible in all three dimensions and is secured to the tower so as to be one with it. The analogy between spring in a frame and carriage springs, which has often been cited by architects, is fallacious. The bell-frame has not to be driven along a rough road. No one would dream of putting springs into the bed of a fixed reciprocating engine. The system of supporting the frame on four diagonal main girders has points in its favour. It was used very many years ago with timber beams and a timber frame, but not always with a good result.

May I recommend anyone who is interested in self-lubricating oil ring bearings to remove the cap of the bearing and watch the movement of the ring while the bell is being rung. He will find it most instructive.

It is not quite clear in the photograph of the Bredon frame what is the level of the tenor's gudgeons, but it would be interesting to know whether the bell is easy to "clapper up right side"—a most important point if the bells are generally "raised in peal."

EDWIN H. LEWIS.

Representative of the Cambridge University Guild of Change-Ringers on the Central Council of Bell-Ringers.

Carluke.

[With reference to the above letter, we would point out that it is not necessary for architects who are interested in the installation of a peal of bells to enter into the theoretical formulæ for the inertia of a ringing bell. What they really want to know is the practical result upon the tower of the ringing of all the bells. We quite agree that the horizontal force is the only one which need be taken into consideration as far as the tower is concerned, and therefore if this horizontal force is eliminated—or, rather, transferred into a vertical direction—there is then an almost perfect state of affairs. We do not wish to enter into the question as to how this result is achieved, and we certainly cannot understand a reciprocating steam engine being compared to a complete installation of bells, any more than concrete foundations being compared to a bell chamber in a lofty church tower. We are greatly impressed with the efficiency of the "Warner" self-aligning bearings; it is certainly most instructive to watch the requisite quantity of oil beng drawn up by the peculiar creeping movement of the rings when the bell is being rung. We should strongly advise architects to get into direct touch with the makers of the new bell frame, composed of vertical cantilever members, especially as we understand that an extension of this idea has been effected in a certain church tower, by bringing the point of attachment of the bell frame to the walls about 14 ft. lower than the bells themselves, with most beneficial results.—EDS. A. AND B.J.]

CONSTRUCTIONAL TIMBER AND THE BUILDING BY-LAWS.*

BY E. J. GOODACRE A.M.Inst.C.E., Assistant Borough Surveyor, Shrewsbury.

ALTHOUGH the progress of building science has brought new constructive materials into vogue, wood continues to hold a prominent position in the engineering and building world. The author has always been very much surprised at the sparse treatment that timber receives in the by-laws adopted by urban authorities, and it is proposed in this paper to briefly review the different clauses appertaining to this material. The most recent Draft Urban Model By-laws have been taken as the basis of this criticism.

Bearing of Wood Bressummers.

By-law 34 states:—" Every person who shall erect a new building shall cause every bressummer to be borne by a sufficient template of stone, iron, terra-cotta, or vitrified stoneware of the full breadth of the bressummer, and to have a bearing in the direction of its length of four inches at least in each end."

The latter part of this by-law, quite sound in its intention, has to some extent been defeated by the policy of cutting down expense and timber at the same time, by means of the common practice of cutting the deals forming the bressummer on the splay. The bressummer certainly has a bearing of four inches in the direction of its length, but not in the direction of its depth. Floor joists are similarly treated in this objectionable manner, and the by-laws should receive amendment to enable this to be stopped.

Timber Fixed Near Flues.

By-law 47 states:—" A person who shall erect a new building shall not place any timber or woodwork: (*a*) In any wall or chimney breast of such a building nearer than nine inches to the inside of any flue or chimney opening. (*b*) Under any chimney opening of such building within ten inches from the upper surface of the hearth thereof. A person who shall erect a new building shall not drive any wooden plug into any wall or chimney breast of such building nearer than six inches to the inside of any flue or chimney opening."

This by-law, perhaps, generally imagined to be not of great import, is one of the building edicts which are contravened more than any other, and, in fact, is one which requires almost constant supervision to enforce it. In a large town or in fact any town where the building trade is brisk, it would require a small army of building inspectors to watch the speculative builder, or there will be, most probably, a breach of this by-law, in the fixing of skirtings, picture-rails, or angle beads to chimney breasts. It is, no doubt, an arbitrary point as to which method is the best, to fix these moulding without using wooden plugs in the " danger-zone " of the flues. It is noticeable that in many of the by-laws the remedy is specified to what shall be done, and in this case, where some solution would be of value, none is given. Lead plugs and breeze bricks are methods sometimes adopted, but lead has been known to melt and its object to be thus defeated; breeze bricks are almost certain to be in the wrong place, or cannot be found by the carpenter when he comes on the scene after the walls are plastered.

The best solution to the difficulty is, undoubtedly, the use of fire-clay piping at least one inch in thickness in all flues. Although slightly more costly, it would save the cost of parging the flues—a constant source of worry to the inspector—and all risk of firing wooden fixings would be reduced to a minimum; and incidentally there would be fewer smoky chimneys.

Ventilation of Floors and Dry Rot.

By-law 55 states:—" Every person who shall erect a new domestic building shall so construct every room which shall be situated in the lowest storey of such building, and shall be provided with a boarded floor, that there shall be, for the purpose of ventilation between the underside of every joist on which such floor may be laid and the upper surface of the asphalte or concrete with which, in pursuance of the by-law in that behalf the ground surface or site of such building may be covered, a clear space of three inches at the least in every part, and he shall cause such space to be thoroughly ventilated by means of suitable and sufficient air bricks, or by some other effectual method.

" Provided that the foregoing requirement shall not apply in the case of a room provided with a solid floor composed of boards, planks or wood blocks, laid or bedded directly upon concrete or other similar dry and impervious foundation."

The ravages of dry rot in floor timbers are well known to every municipal engineer, and this by-law to some extent safeguards against this virulent disease. The author has paid a good deal of attention to dry rot, and has recently carried out several interesting experiments in order to glean information on this subject. Small pieces of well-seasoned red deal, pitch pine, oak, teak, and mahogany were inoculated with the disease, and the specimens placed in a dark chamber with a congenial, warm, stagnant atmosphere. The red deal, as might be supposed, was the first to show signs of germination, and in three days a white mould broke out in round patches, especially at the exposed end of the piece, looking like cotton-wool. This outgrowth became more dense, and gradually evolved into a dark-brown snuff-like powder. Teak and mahogany showed similar signs, but in a lesser degree. Oak showed only the faintest signs of susceptibility to the attack at the outset. Pitch pine warded off germination for a considerably longer period, possibly owing to the resinous nature of its fibres.

The foregoing specimens were well seasoned, but still they were not immune from attack in congenial surroundings, and this is important. In comparison with the above results, a piece of unseasoned red deal, which already showed the first signs of dry rot, viz., reddish brown stains and small rust-like patches, was submitted to a similar experiment, and, needless to say, the *merulius lachrymans* developed very quickly. In the first few days the deal was permeated with the growth. The wood at first became discoloured to a dark-brown colour. It then swelled as the cell walls absorbed moisture in the direction of the fibres. It afterwards gave up this moisture, and eventually " charred." It became lighter in weight, and crumbled up into a brown powder when probed with a knife.

It is thus evident how timbers infected with dry rot lose all their strength and become unsafe, and it is only to be expected to find a by-law dealing with this matter. But does this by-law go far enough? Many cases, no doubt, will occur to all where dry rot has shown itself, even though the by-law has been literally observed.

In fact, the Board of Agriculture anc Fisheries, referring to the increasing pre valence of the disease, drew up an officia leaflet in 1909, of which the following is ar extract: Infection with dry rot fungu sometimes takes place in the forest, wher felled timber remains stored there for som time. The first evidence of such infectior is indicated by the presence of red stripes ir the sawn wood. If such wood i thoroughly seasoned, the mycelium presen in the red wood is killed. If the seasonin is neglected or imperfectly done, the myce lium, which possesses the power of re maining in a latent condition for som time, commences active growth when th wood is used in any part of a buildin where it is exposed to dampness, and thi in some cases is unavoidable, as when th ends of joists are built into a wall. Unde such circumstances, dry-rot eventuall appears. On the other hand, the fungu is by no means rare in old beams, an boards stored in wood yards, etc., and it i mainly from such causes that spores o portions of the spreading mycelium ar introduced into buildings by new woo which has become infected. Spores ar diffused by currents of air, or by rats mice, and insects. The mycelium ca extend over stones and other such sub stances.

The author has recently inspected a ver bad case of " dry rot," in which the myce lium has spread over glass, and along wall to a door casing, which had become s decayed that the hinges had fallen out.

It is quite evident that the informatio given by the Board of Agriculture has n vividly impressed their neighbours at th Local Government Board Offices, as ther has been no amendment in the by-law f the last twenty years or so. Possibly is thought that the by-law quoted is suff cient, and that the person in charge of th administration of the by-laws has a suff cient weapon to fight the rampant enem If such is the case, it will be necessary f the municipal engineer to bring to his a " the unwritten law "—tact—to bear up the builders, if he is to ensure the hous built under his supervision being free fro dry rot and remaining so.

The following points are suggested essential to this end, and probably othe will be forthcoming in the course of t discussion. The timber must be w seasoned, and must be kept dry. T damp course to external walls and sleep walls must be absolutely impervious. T site should be covered with at least fo inches of cement concrete, consisting one part of Portland cement, one part sand, and four parts of clean broken bric granite, or ballast.

Particular stress is laid upon this, model by-laws use the rather elastic ter " good cement concrete," and the auth has heard the speculative builder arg that this is satisfied with concrete ma something like the following: " One b of cement to a cartload of dir engine ashes." Of course, this is abs lutely useless.

Ammoniacal exhalations generated fro vegetable soil are favourable to the disea spores, and therefore all soil should entirely removed from underneath floors. The house should be well dri before the floors are laid, and the flo oards should on no account be laid in a vet state. The ventilation under floors hould be most efficient. Ventilating air ricks in the external wall are not suffi-ient, but should be supplemented by air rains under all adjacent solid floors. Even hen it is very doubtful whether ventilation ctually exists, and the only remedy ppears to have an air flue from the under loor space carried up with the smoke flue f the room. Chips of wood left by the arpenters, lying about under the floors, re frequently the origin of an attack of ry rot in floors, and they should therefore e cleared up. Even with concrete under loors this is essential, as the shavings robably become infected with dry rot efore the concrete is dry. The ends of he joists should have a clear air space round, and should not be bedded in lime nortar, for the moisture of the mortar is bsorbed by capillary attraction into the oist; moreover, quick lime, unless kept uite dry, has an injurious effect on wood, nd it is always present to some extent in resh mortar. The skirting should be acked with adamant plaster, and should ot be fixed until the wall and plaster are uite dry.

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*Extracts from a paper prepared for the meeting of the West Midland District of the Institution of Municipal and County Engineers, at Birmingham.

Windows to Open.

By-law 56 states: "Every person who hall erect a new building shall construct in very habitable room of such building one indow at the least, opening directly into e external air, and he shall cause the total rea of such window, or if there be more an one, of the several windows, clear of e sash frames, to be equal at the least to ne-tenth of the floor area of such room."

"Such person shall also construct every ch window so that one-half at the least ay be opened, and so that the opening ay extend in every case to the top of the indow."

"Habitable Room" in this by-law, as in others, is somewhat vague, and the Board should have defined it in the interpretation of terms. Apparently, also, one might build a pantry or larder without a window and yet satisfy this by-law. Another point in this by-law is rather arbitrary, that is, one half may be opened; one half of what? The whole window area or one-twentieth of the floor area? Presumably the latter, but at all events, such ambiguity is a constant source of worry to the administrator of the by-laws.

Notable Omissions from the By-laws.

There are several notable omissions from the Draft Model By-laws regarding woodwork. The author, as stated previously, is fully aware that this does not apply to all by-laws adopted by local authorities, but the questions involved are so vital to the safety of our dwellings that they should be included in the Board's drafts, urban, intermediate, and rural, and should be an essential in the by-laws adopted by every local authority.

Staircases.

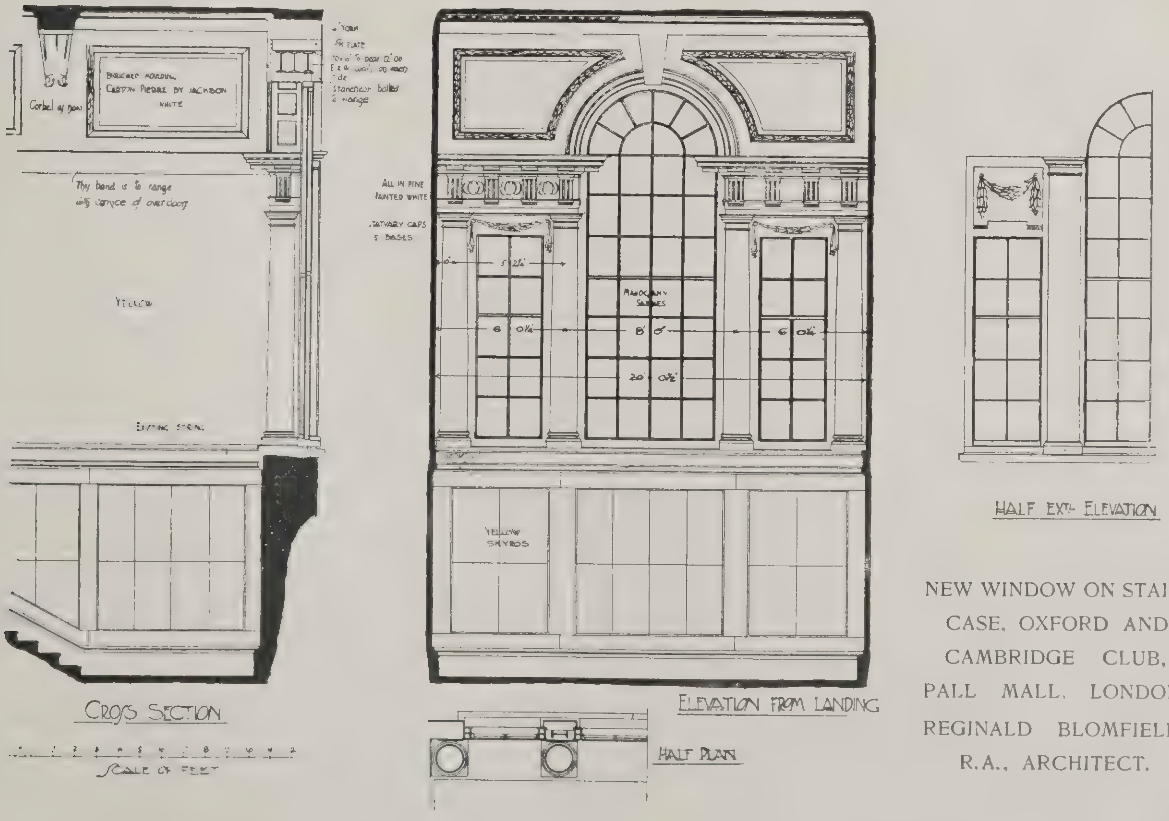
The angle of the string of the stairs in many cases is such that the stairs are positively dangerous to the inhabitants. This matter is very pronounced in the stairs of a narrow fronted semi-detached house. The author has frequently had occasion to cause the builder to alter the stairs, in order to give a sufficient headroom. In some cases this has been quite unsafe and, not having any statutory powers, the only way the surveyor can accomplish this necessary alteration is by tact. The indiscriminate use of winders at the top of stairs; risers immediately at the threshold of bedroom doors; absence of handrails, and badly lighted staircases, especially in the case of stairs approached from the living room and shut off by a door are a few points for objection.

To meet these objections, by-laws should be framed embodying the following points: (1) The angle of the string of the stairs should not exceed 45 degrees with the floor. This would approximately give an 8-in tread and an 8-in. riser, neglecting the nosing. (2) The headroom should in no case be less than 6 ft. 6 in., measured vertically. (3) Winders, if absolutely necessary, should be at the bottom of a flight of stairs, and not at the top. (4) No riser should be permissible immediately under a door. (5) Every staircase should be provided with a proper banister, handrail, or balustrade, of a height of not less than 2 ft. 6 in., measured vertically from each tread, and properly and securely fixed. (6) The staircase should be properly lighted, and not less than 2 ft. 9 in. wide.

Strength of Floor Joists and Roof Timbers.

In the author's opinion no by-laws can be deemed complete unless every surveyor has actual power to regulate the safety of floors and roofs. Numerous cases will no doubt rise in the minds of Council officials of floor joists of unsound timber and doubtful scantling, fixed at excessive centres in houses under their jurisdiction. There is a difficulty in providing for the many and various cases of public buildings and warehouses, but surely necessary powers might be left to the discretion of the municipal engineer, who is quite competent to deal with such questions.

The foregoing remarks are the result of the author's personal experience. The present day agitation for cheap dwellings is, of course, a great factor to be considered, but surely economy can and must be effected without sacrificing the safety and hygienic conditions of dwelling-houses. It is hoped that the Local Government Board will ere long bring their by-laws more into line with the experience of those who administer them.



NEW WINDOW ON STAIRCASE, OXFORD AND CAMBRIDGE CLUB, PALL MALL, LONDON. REGINALD BLOMFIELD, R.A., ARCHITECT.

ENQUIRIES ANSWERED.

Patches and Bubbles on Distempered Wall.

M. (London) writes: "On certain damp days (not necessarily rainy days) the washable distemper on a plastered wall comes up in bubbles in small patches and goes down again perfectly flat on a dry day. The cause is believed to be the excessive saline nature of certain bricks. What is the best way to treat the wall, having regard to the fact that the house is in a district subject to excessive condensation."

—On the description given, no answer is possible, because washable distemper is not in the least elastic; hence, cannot come up in bubbles. It appears to be a case of deposit. If, however, you will examine the work closely, and write again, I will endeavour to assist. A. S. J.

Value of Architect's Share in Estate.

PROPERTY writes: "A sum of £1,300 invested in property brings in an income of £53 10s. Out of this sum £25 is paid to an elderly relative, who will probably live ten years, and two other persons benefit by the estate, taking the balance, viz., £28. After the relative's death, the capital is to be equally divided. One of the relatives is a young architect, and for pecuniary reasons would like to sell his interest in the estate. What would be a fair amount to give him for it?"

—Assuming that the value of the "property" will be £1,300 whenever it falls in for division—having neither appreciated nor depreciated in the meantime—and also assuming that the reversion is an absolute one, I value the present interest of one of the ultimate recipients as follows:

Present value of £14 5s. 0d. per annum for 10 years to come, on 4 per cent. tables, £14·25 × 8·1 years purchase	£115
Present value of half of £53 10s. in perpetuity on the 4 per cent. tables, £26·75 × 25 years purchase £668·75, but deferred for ten years × ·675	£451
Making the present total value of one of the equal interests	£566

F. S. I.

Matching Old Cement Rendering.

DATA writes: "What is the best specification for external rendering on a large scale (columns, cornices, moulded arches, and plain surfaces) for an extension to an old building near the sea? The extension must match as near as possible the old surface rendering, which has now become a darkish brown, so that the new rendering must contain colouring matter. Is an under-coat of cement rendering necessary or advisable?"

—Some hint as to the age of the building to be extended would have been useful. From the description given it seems likely that the old rendering is of Roman cement, which gives the dark brown colour described. This was the material generally used before the common introduction of Portland cement, and it is almost impossible to match it with the latter material, which kills any colouring matter added. I suggest a first coat of Portland cement 1 part, clean sand 4 parts, on plain work, and 1 and 1 on mouldings, all well scratched and finished with a final coat of Roman, Sheppey, or Medina cement gauged with an equal part of brown sand. If any further staining down proves necessary on experiment, avoid earthy stains, which are fugitive, and weakening to the cement. Eight parts yellow oxide, 1 part red oxide, to 36 parts of cement mixture produces a dark buff. G.

WHAT IS THE HEIGHT OF ST. PAUL'S?

In our issue for December 9 (page 352) we published a note concerning the height of St. Paul's Cathedral, which is in dispute. To the particulars given may now be added the following:—

Mr. J. Landfear Lucas, writing to the "Morning Post," quotes from John Weale's "London Exhibited in 1851," which gives the height of the lantern, ball and cross together as 365 ft. from the ground, 356 ft. from the floor of the church, and 375 ft. from that of the crypts. A footnote adds: "We cannot guess the origin of the 404 ft. copied into most accounts, unless it be taken from the bottom of the foundations, or the level of the Thames." Yet the Guides sold in the Cathedral in 1880 state that the height to the top of the cross is 352 ft. from the floor of the church, or 360 ft. from the pavement in the street. Another version, says Mr. Landfear Lucas, is found in "Some Notes, chiefly on the fabric of the Cathedral Church of St. Paul, in London," by Lewis Gilbertson, M.A., Minor Canon and Sub-Librarian, who says: "The total height from the pavement of the churchyard to the top of the cross is 370 ft." Still another variety may be seen in "The Churches of London," by Godwin and Britton, 1838, who declare: "Height from the ground without to the top of the cross 340 ft." And a final differing authority is "Old and New London," Vol. I., p. 254, as follows: "The height from the nave pavement to the top of the cross is 365 ft."

Mr. William Woodward, F.R.I.B.A., says that to the foregoing should be added what he regards as the most reliable authority of all, namely, Britton and Pugin's "Public Buildings of London," the section in Vol. I. of which gives the following heights:—

From the lower level of the floor of the crypt to the extreme top of the cross, 381 ft.

From the upper surface of the floor of the cathedral proper to the extreme top of the cross, 360 ft.

From the upper surface of the floor of the cathedral to the top of the inner cupola, 217 ft.

From the upper surface of floor of cathedral to top of outer dome, 270 ft.

FOR KING AND COUNTRY.

The Trussed Concrete Steel Co., Ltd. (Kahn system) give, in their business publication, "Kahncrete Engineering," a list of "twenty-six Kahn system men who are fighting for King and Country." This roll of honour comprises Captain L. C. Goodeve, 1st Battery, 1st Brigade, Canadian Field Artillery; Lieut. H. F. H. Hertzberg, 2nd Field Artillery, Canadian Engineers; H. W. Hart, on the staff of General Wray; and the following non-commissioned officers and privates: J. E. Bland, W. Bruce, S. Colthorpe, M. E. Creasy, P. R. Dunkley, J. Golding, B. Headford, A. P. Hitchens, J. Hunt, J. Jackson, A. J. Mason, W. McCrea, J. Muir, R. H. O'Connell, L. W. Parker, G. Payne, R. Pepper, J. Prince, F. T. Shatwell, J. M. Stanton, R. Stubbs, I. D. Waddell, and A. N. Worthington.

THE LONDON COUNTY HALL DERRICK COLLAPSE.

At Lambeth last week the inquest on John Frederick William Cooper, aged twenty-one, builder's signalman, formerly employed by Messrs. Holland, Hannen and Cubitts, contractors, who was killed on December 4 by the collapse of a derrick at the new County Hall which is being erected by the County Council, was concluded. Arthur Wallace, crane driver, who fell 115 ft. at the time of the accident gave evidence. He was still suffering from the effects of his fall. The Coroner I congratulate you on having broken al records by falling 115 ft. and being alive to tell the tale. Several Jurors: Hear, hear Wallace went on to say that at half-past two o'clock Cooper and he were having tea in their engine shed at the top of the derrick when a sudden gust of wind twisted the staging round. Cooper called out "We are gone," and witness remembered no more. Other evidence having been given, the Coroner said that in his opinion such structures as the derrick in question ought to be supervised. At the present time we had inspectors of houses, and so on, but there seemed nothing to prevent anyone erecting a structure 300 ft. high over the heads of omnibus passengers and pedestrians. It was a matter which called for the attention of the Legislature. He was not a Scotsman, but he must say they managed matters better in Scotland. There was a functionary known as the Dean o Guild, whose duty it was to inspect these things before they were used.

The jury returned a verdict of "Accidental death" and recommended that such structures should be erected and maintained under Government supervision, with frequent inspection.

THE CHAPELS OF WESTMINSTER CATHEDRAL.

The decoration of Westminster Cathedral is being gradually carried out; in so huge a fabric it must necessarily be slow.

The Chapel of St. Andrew and the Saints of Scotland—the gift of Lord Bute—is the first of what may be called the three national chapels to be finished. Altars have been set up in the Chapel of St. George and the English Martyrs, and in the Chapel of St. Patrick and the Saints of Ireland; but the adornment of neither has yet been begun. The other chapels completed are those of the Blessed Sacrament, on the Gospel side of the High Altar; Our Blessed Lady, on the Epistle side; and the Holy Souls and St. Gregory and St. Augustine, in the aisles. The Chapel of St. Andrew and the Saints of Scotland is a rich example of mosaic and marble decoration by English craftsmen. The altar is of black Alloa marble supported on five pillars of red Peterhead granite with bronze capitals and bases of grey Aberdeen granite. The reredos is o marble with a cross, inlaid, of antique Egyptian porphyry, upon which is a large bronze figure of Christ. Scotland's great saints, including St. Andrew, St. Ninian, St. Columba, and St. Margaret, are represented in sculptured reliefs on either side of the altar. The marble pavement, representing the sea, has inlaid fishes of coloured stone. The dado of one of the walls is of blue and white marble, the colours of Scotland and St. Andrew, and the arch of the last wall behind the altar has a large jewelled St. Andrew's Cross on a flowery field, with white doves flying around.

NEW BOOKS.

Dedications and Patron Saints of English Churches."

Any dignified means of rendering art teresting to the general public is of two- ld assistance to the artist. It tends to ovide him with more work and stimulates m to a closer study of the sources of spiration, and hence to higher endeavour. though Mr. Francis Bond's book on Dedications and Patron Saints of nglish Churches" makes a wide popular peal by reason of the copious illustra- ons and the legendary lore that they ystallise, it is not thereby the less valu- le to the architect and the decorative ist, who will go to it more for guidance an for amusement, and who will find that . Bond's industry and scholarship have ought into serviceable conspectus many letail that otherwise had remained fugi- e and elusive.

Divided into three unequal parts, the st comprising eighteen chapters, the ond only one, and the third no more n two, the book deals mainly with dedi- ions, the reasons for them and, conse- ently, the legends connected with them. the enumeration of the dedications Mr. nd was preceded by Miss Frances nold-Forster, to whose useful alphabeti- list of all the English parishes cordial nowledgement is made, apart from its lusion in the bibliography with which book is prefaced—a feature that greatly tributes to the practical value of the ume. Taking this list for his guide, Bond has brought together 252 illus- ions taken from paintings, carvings, ravings, or old MS. drawings, from dow or wall, pulpit or pew, rood-screen miserere, and the value of this collec to the architect, art-craftsman, and orator can hardly be over-estimated, ther the representations be in any le instance strictly in accordance with litional treatment or of unorthodox inality, or beautiful or merely quaint. less various are the legends associated them; and we think that Mr. Bond is er ungrateful in his hard saying of the inators of some of the myths—Geoffrey Monmouth and Henry of Huntingdon— they were "two of the worst liars in Middle Ages." Rigid regard for un- ished and unimaginative truth, uni- ally observed, would give us but a drab d, and in particular would have robbed of nearly all the materials for Mr. d's useful and delightful book; and all the exactitudes of the mathemati- ; we would not barter a single legend of aints—especially not any of those that er round that versatile art-craftsman Dunstan, concerning whom the popular on that, because he is usually depicted king the devil by the nose with a pair incers, he was merely a blacksmith, be corrected in the light of one of Bond's many fruity footnotes: "A boss e vault of Exeter Cathedral shows St. stan standing and playing a large . According to William of Malmes- , 'Most of all he delighted not only e practice, but the science of music n the making of musical instruments.' said of him that one day he hung his on the wall, while designing some em- ery, in which also he was an expert, as he sang over his work the harp of n accord played an accompaniment."

special value to the architect and art man is an alphabetical list of the and their emblems—the objects symbolise their virtues, their pious , or the means of their martyrdom. St. Barbara, for instance, carries a tower, and a palm, a feather, or a sword, has the crown of martyrdom, and tramples on her father or a Saracen. Why trampling upon her father is accounted to her for a virtue appears from her legend: "Her father was building a cistern or piscina with a tower, and in his absence she caused three windows to be substituted for two. And when he returned he demanded why three. And St. Barbara answered, 'These three windows betoken clearly the Father, the Son, and the Holy Ghost, on whom we ought to believe and worship.' Then he incontinent drew his sword to have slain her, but she was borne away to a mountain. Here her father found her, and took her by the hair, and drew her back to the town and delivered her to the judge. Next day and many days she was beaten and tortured; at last her father slew her with his own hands. Whereon fire descended on him, and consumed him in suchwise that there could not be found any ashes of all his whole body." It is always annoying to have one's designs modified without consultation or reference: but Barbara's father's resentment certainly betrayed some slight excess of fervour, and was therefore bad in art, however much justification it may seem to derive from the rather desolating design which is taken to represent Barbara's pious but crude and otherwise unfortunate essay in architecture. But in this legend, as in most others, there is, of course, a spiritual interpretation that condones, or at least transcends the carnal, and it is upon this spiritual element that the modern artist instinctively lays most stress. He will by no means allow Barbara to continue trampling on her father. But what a gloss and commentary are these quaint and crude old legends on the primitive simplicity of the medieval mind! Mr. Bond's book will be a boon to architects and art craftsmen—a treasury of recondite, quaint, and often supremely beautiful images.

"Dedications and Patron Saints of English Churches: Ecclesiastical Symbolism, Saints and their Emblems." By Francis Bond, M.A., F.G.S., Hon. A.R.I.B.A. With 252 illustrations. Pages xvi. + 344, 6¼ in. by 9¼ ins., price 7s. 6d. net. Humphrey Melford, Oxford University Press, London, New York, Toronto, Melbourne, and Bombay.

A Guide to Gothic Architecture.

Mr. T. Francis Bumpus, in his round dozen of popular books on ecclesiastical architecture, has done much to popularise what is conveniently called Gothic, and, if incidentally, he happens to have fostered an impression that no other kind of architecture is equally worthy of attention, that is no fault of his, but is merely an accident of the situation. He knows his public, and has acquired a very pretty knack of entertaining and instructing them. It is with ecclesiastical architecture, because there is an unmistakable example of it at every other street corner, that the public are most familiar; and it is in Gothic that the amateur student of architecture is most interested, because its data, documentary or in three dimensions, are those which are most easily accessible; as are, indeed, its materials for the making of books.

Mr. Bumpus, as always, has done his work very well. His gossip is light and agreeable, and he has got together an abundance of more or less typical and representative illustrations, most of which, however, might have been printed better. They consist mainly of views, exterior and interior, with few details and fewer plans. It is views that the public want; they will not take the trouble to understand plans.

"A Guide to Gothic Architecture." By T. Francis Bumpus. With 143 illustrations. Pages xii. + 360, 8¾ in. by 5½ in., price 10s. 6d. net. London: T. Werner Laurie, Ltd., 8, Essex Street, Strand.

NEWS ITEMS.

A New Partnership.

Mr. Sydney D. Kitson, F.R.I.B.A., has taken into partnership Mr. James Parish, Licentiate R.I.B.A., who has assisted him for fourteen years, and the practice will be continued under the style of "Kitson and Parish" at Lloyd's Bank Chambers, Vicar Lane, Leeds.

Cleaning of Memorial Stones.

To provide work for unemployed, the Paddington Borough Council has decided to have the old memorial stones in the Paddington Cemetery cleaned and rearranged. This can be done by unskilled men, without any outlay for materials. The Central (Unemployed) Body is paying the cost, £324, which all goes in wages.

Professional Announcement.

Mr. Raymond Unwin, F.R.I.B.A., having accepted the post of chief town-planning inspector to the Local Government Board, has handed over to his partner, Mr. Barry Parker, F.R.I.B.A., of 32, Bedford Row, London, W.C., and Norton Way, Letchworth, Hertfordshire, his town-planning and architectural practice and all interest therein.

New Town Planning Schemes.

It is understood that the Local Government Board has given authority for the preparation of eleven further town planning schemes, under the Housing, Town Planning, etc., Act, 1909. The schemes are authorised to be prepared by the Corporations of Birkenhead, Leeds (two schemes), Lincoln, Manchester, Rochdale, Southend-on-Sea, and Wallsend, and the Urban District Councils of Esher and the Dittons, Grays Thurrock, and Neston and Parkgate. They relate to areas of about 166, 2,278, 895, 207, 5,269, 1,576, 268, 1,105, 1,643, 2,374, and 3258 acres respectively.

Mr. Prior's Academy Lectures.

Four lectures on "The Thousand Years of the Flemish Arts" will be delivered at Burlington House next month by Mr. E. S. Prior, M.A., A.R.A., F.R.I.B.A., Slade Professor of Fine Art in the University of Cambridge. They will be as follows: February 15, "The Romanesque and Gothic Arts of the Low Countries"; February 17, "Architecture in Flanders and Brabant, A.D. 1400 to 1800"; February 22, "The Arts and Crafts of the Flemish Renaissance"; February 24, "The Two Eras of Flemish Sculpture and Painting." The lectures will commence at 4 p.m.

Two Retirements.

Mr. William Bell, F.R.I.B.A., chief architect to the North-Eastern Railway Company, retired at the end of 1914. He was connected with the company extending over a period of no fewer than fifty-seven years, during the last thirty-seven of which he has served as the company's chief architect. In this capacity Mr. Bell has been responsible for, and intimately associated with, the design and erection of the passenger stations, goods warehouses, hotels, offices, and locomotive and other works buildings.

The last day of the old year witnessed the retirement of a distinguished figure in the public life of London. This is Mr. Andrew Young, who has been valuer to the London County Council since 1889, but whose connection with municipal work dates back to 1871. The valuations in which Mr. Young has been concerned form in themselves quite a skeleton history of London improvements during that period, the properties including those concerned in the Kingsway and Aldwych scheme, and the construction of the County Hall. Mr. Young has also been concerned in the purchase of over a hundred miles of tramways, in the rebuilding of Vauxhall and Putney Bridges, and the building of the Blackwall, Rotherhithe, Greenwich, and Woolwich tunnels.

Housing at York.

A Local Government Board inquiry has been held at York into the application of the Corporation to borrow £6,214 for the purchase of 48 acres of land at Heworth for housing purposes. It is proposed to build 220 houses as soon as possible. The Committee are also considering the desirability of demolishing 250 houses in an insanitary area.

R.I.B.A. EXAMINATION RESULTS.

Preliminary.

The Preliminary Examination, qualifying for registration as Probationer R.I.B.A., was held in London and the under-stated provincial centres on November 24th and 25th November, 1914. Of the seventy candidates admitted twenty-five were exempted from sitting, and the remaining forty-five examined, with the following results:—

Centre.	Number Examined.	Passed.	Relegated.
London	22	12	10
Cardiff	2	—	2
Birmingham	3	1	2
Leeds	3	3	—
Liverpool	3	2	1
Manchester	11	6	5
Newcastle	1	—	1
	45	24	21

The passed and exempted candidates—numbering forty-nine altogether—are as follows:-

Adams, G. E., Ripon.
Adams, H. A. D., Monkseaton.
Ambler, H. J., London.
Bailey, C. H., Braintree.
Bannister, H., London, S.W.
Bennett, J., Glasgow.
Bennett, W. J., St. Andrews.
Beville, A. G., Hampstead.
Buchanan, A. P., Glasgow.
Bulstrode, S. G., Bishop's Waltham.
Cartwright, W. F., Loughborough.
Cassidy, G. A., Preston.
Chapman, F. W., Sheffield.
Clark, H. G., Darlington.
Crawley, A., Lincoln.
Elliott, C., Coventry.
Farrier, A. V., Kingston-on-Thames.
Forgie, A. G., Leith.
Gamon, C. S., Neston.
Genner, L. J. E., London, S.W.
Gordon, P. J., London, W.C.
Greasley, J. N., Southbourne.
Haird, T. W., Leicester.
Hamilton, A. B., London, W.C.
Howell, N. A., Reading.
Hulme, F. V., Stoke-on-Trent.
Jones, F. W., Rochdale.
Keller, C. F., Edgehill.
Koch, M. D. N., Hampstead, N.W.
Lovell, J. P., Derby.
Lowe, J. S., Manchester.
Millard, J. A., Brixton, S.W.
•Mitchell, C. H., London, W.C.
Mitchener, W. G., Golder's Green, N.
Nunn, J. P., Manchester.
Peel, A., Staveley.
Pidduck, J. C., Alsager.
Remnant, E. A., Anerley.
Roberts, K. M., Blackheath, S.E.
Rogers, W. J., Newport.
Smith, G. A., Hull.
Stokes, L. R., Beaconsfield.
Sugden, H. D., Heaton Moor.
Tansley, H., Leicester.
Thomas, F. L., Taunton.
Thomas, L. G. T., Cambridge.
Trillia, R. S., Clifton.
Watson, H., Otley.
Wilson, R. A. G., Swansea.

Intermediate.

The Intermediate Examination, qualifying for registration as Student R.I.B.A., was held in London and the under-stated provincial centres from the 20th to the 27th November, 1914. Thirty-four candidates were examined, with the following results:—

Centre.	Number Examined.	Passed.	Relegated.
London	12	6	6
Belfast	1	1	—
Cardiff	3	2	1
Leeds	4	1	3
Liverpool	1	—	1
Manchester	10	7	3
Newcastle	3	2	1
	34	19	15

The passed candidates are as follows, the names being given in order of merit as placed by the Board of Architectural Education:—

Lloyd, A. P., Swansea.
Dartnall, J. A., Leytonstone, N.E.
Helliwell, H. C., Manchester.
Stewart, C. B., Darlington.
Fenner, L., Hull.
Mitchell, C. H., London, W.C.
Weston, K. V., West Bridgford.
Knight, D. E., West Bridgford.
Clayton, G. R., Blackburn.
Cottingham, G. R., Plumstead.
Evans, H. G., Carmarthen.
Proffitt, G. W., Walkden.
Roberts, E. W., Swansea.
Scott, N. E., Cork.
Spence, W. N., Dublin.
Stewart, A. K., Loughgelly.
Streadwick, V. J., Brixton Hill, S.W.
Wilson, R., jun., Falkirk.
Wood, A. G., Brenchley.

The number of failures among the relegated candidates in each subject of the Intermediate Examination was as follows:—

A. Principal Styles and General History of Architecture	7
B. 1. Simple Applied Construction	9
B. 2. Theoretical Construction	10
C. 1. Historical Architecture	3
(*a*) Greek and Roman	1
(*b*) Byzantine and Romanesque	—
(*c*) French and English Gothic	1
(*d*) Italian, French, and English Renaissance	-
C. 2. Mathematics and Mechanics	-
C. 3. Design	4

Exemptions from the Intermediate.

The following Probationers, trained at the Schools mentioned and possessing the Certificates required under the regulations, were exempted from sitting for the Intermediate Examination, and have been registered as Students R.I.B.A.:—

Bennett, J., Glasgow. [Glasgow School of Architecture.]
Brown, J. M., Stonehouse. [Glasgow School of Architecture.]
Burnet, E. M. W., Aberdeen. [Aberdeen School of Architecture.]
Derry, D. C. L., Hampstead, N.W. [Architectural Association School of Architecture.]
Duncan, R. A., Chelsea [Architectural Association School of Architecture.]
Fisher, H. N., London, N. [London University School of Architecture.]
Gordon, P. J., London, W.C. [Sydney Technical College.]
Hamilton, A. B., London, W.C. [Architectural Association School of Architecture.]
Koch, M. D. N., Hampstead N.W. [Architectural Association School of Architecture.]

In accordance with the special concession granted by the Council to Probationers on military service—viz., "Candidates for the Intermediate Examination whose Testimonies of Study are approved, to be registered as Students"—the following Probationers have been exempted from sitting for the Intermediate Examination and have been registered as Students R.I.B.A.:—

Aitken, J. H., Slough.
Allen, G. A., Bromley, Kent.
Clifton, E. N., London, E.C.
Cundall, P. H., Leatherhead.
Curwen J. S., Kendal.
Davis, H. S., Whitstable.
Eveleigh, G. T., Bridwater.
Fisher, K. J., Egremont.
Jeffreys, H. M., Maldon.
Jones, C. F., Cardiff.
Mullins, G. T., Hampstead, N.W.
Pite, R. W., Ealing, W.
Rix, A. D., Acle.
Rudman, W., Clapham Park, S.W.
Snell, A., Liskeard.
Vergetti, R. G., Swansea.
Wilkinson, W. G., Hampstead, N.W.

Final and Special.

The Final and Special Examinations, qualifying for candidature as Associate R.I.B.A., were held in London from December 3rd to 11, 1914. Of the forty-two candidates examined, seventeen passed, and the remaining twenty-five were relegated. The successful candidates, given in alphabethical order, are as follows:—

Abercrombie, L. P. [Special], Liverpool.
Barrow, T. H., Camberwell, S.E.
Basta, H. [Special], Finsbury Park, N.
Bhownaggree, N. M., London, W.C.
Bothwell, E. F., Forest Gate.
Carmichael, D. A., Greenock.
Davison, W. R., Morpeth.
Francis, G. E., Sydenham, S.E.
George, T., Swindon.
Gribbon, B. R., Garforth.
Jenkins, T. P., Swansea.
Jepson, H. N., Kingston-upon-Thames.
Meredith, E., Newbridge-on-Wye.
Owen, A. H., London, N.
Soper, S. G., Golder's Green, N.W.
Triscott, H. S., Brondesbury, N.W.
Wilshere, R., S., Chelmsford.

The number of failures among the relegated candidates in each subject of the Final Examination was as follows:—

A. Design	20
B. Construction—	
(1) Foundations, Walls, Roofs, etc.	
(2) Iron and Steel	
C. Hygiene	
D. Properties and Uses of Building Materials	
E. The Ordinary Practice of Architecture	
F. The Thesis	

Ashpitel Prize, 1914.

On the recommendation of the Boar Architectural Education, the Council awarded the Ashpitel Prize for 1914 to George Eric Francis, as "the candidate has most highly distinguished himself in examinations held during 1914."

COMPETITIONS.

Shakespeare Memorial Theatre.

This competition, owing to the war, had to be declared "in abeyance"—null and void for the present. An edit note on the subject appears on page this issue.

Office Building at Swansea.

In an advertisement which appear another part of the present issue, ten are invited for an office building of 160 cubic feet contents. The quantities be obtained from Mr. J. Shimell And Architect, Swansea, on forwarding guineas deposit, which is returnable receipt of a *bonâ-fide* tender.

LIST OF COMPETITIONS OP

JANUARY 23. — WORKMEN'S HOU DONCASTER.—The Town Council of caster invite designs for the lay-out site of about twenty acres at Carr H and the erection of 102 workmen's ho on four acres thereof on garden city Particulars from R. A. H. Tovey, T Clerk, Doncaster.

FEBRUARY 8.—WORKMEN'S DWELLI CITY OF LIVERPOOL.—The Corporatio Liverpool invite designs for workm dwellings to accommodate about 500 sons, to be erected on the Rathbone S area. Premiums of £100, £50, and are offered, and the Council have appo Mr. Henry Hartley, F.R.I.B.A., as a sor. Particulars (£1 1s., returnable) Mr. Edward R. Pickmere, Town C Municipal Offices, Liverpool.

MARCH 31.—STREET PLANNING, B FORD.—The Corporation of Bradford i competitive designs for the re-plannin streets in the central area of the city. Reginald Blomfield, R.A., will ac assessor. Particulars (£1 1s., return from Frederick Stevens, Town C Town Hall, Bradford.

OBITUARY.

Mr. Cyril Spottiswoode.

We much regret to announce the of Mr. Cyril Spottiswoode, chairman directors of Messrs. Technical Jour Ltd., proprietors of this Journal. Spottiswoode, who died on January 7 only forty-seven.

Mr. F. H. Goodhand.

Mr. Francis Harrison Goodhand, of the firm of Messrs. Hewins and hand, builders and contractors, Gri died on January 4 in his sixty-fourth

Mr. William Smith.

Mr. William Smith, architect and v of Aberdeen, died on January 5 seventy.

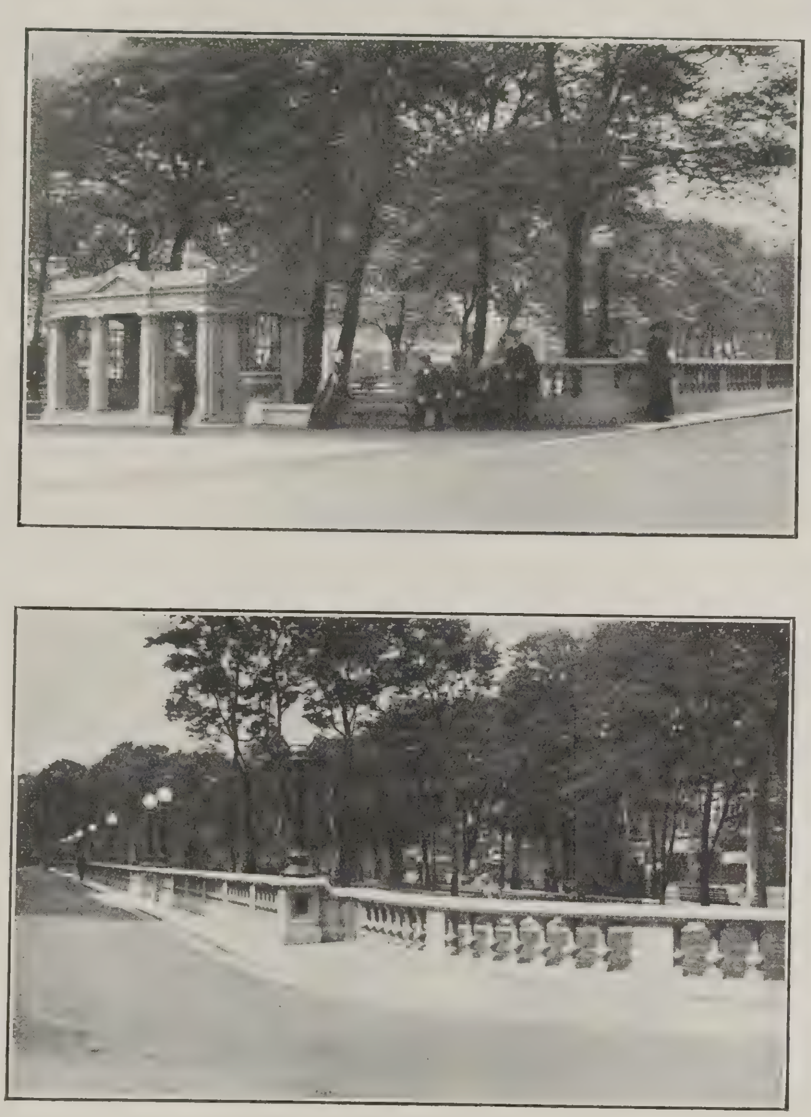
Mr. S. H. Dibble.

Mr. Samuel Henry Dibble, build Birmingham, has left estate valu £203,046.

Mr. W. R. Galbraith.

Mr. William Robert Galbraith, engineer, of London, who died on ber 5, aged eighty-six, left estate has been proved at £88,879 gross.

EMPIRE STONE
FOR
HIGH-CLASS ARTIFICIAL STONE
DRESSINGS.



LORD STREET IMPROVEMENT FOR COUNTY BOROUGH OF SOUTHPORT.

EMPIRE STONE CAN BE MADE IN ANY COLOUR TO MATCH NATURAL STONES.

INEXPENSIVE and DURABLE.

WRITE FOR SAMPLES AND PRICE TO—

EMPIRE STONE COMPANY, LTD.

Telephone No.:
8152 GERRARD.

Telegraphic Address:
"EMPIRSTONE,
LONDON"

THANET HOUSE,
231, STRAND, LONDON, W.C.
AND
WINCHESTER HOUSE, VICTORIA SQ., BIRMINGHAM.

T. J. McDOWELL,
MANAGING
DIRECTOR.

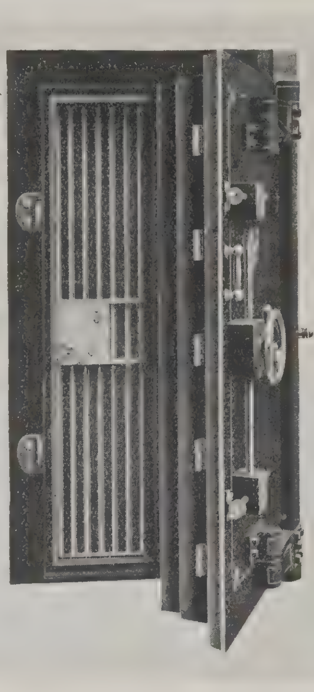
TRADE AND CRAFT.

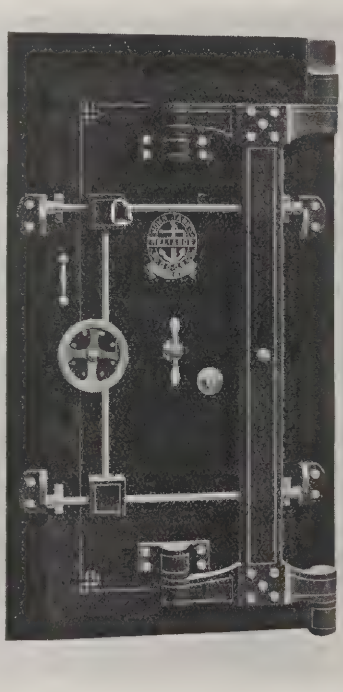
Fire Tests of "Calno Boards."

Messrs. Fireproof Fibre Building-Boards, Ltd., 26, Hart Street, Bloomsbury, W.C., have forwarded copies of two certificates they have recently received from the British Fire Prevention Committee relative to tests of "Calno Board," which, being fire and damp-resisting, and non-conductor of heat and cold, sanitary, germ-proof, and sound-proof, is extensively used in camps, hospitals, and sanatoria, etc. The first of the two certificates attests that "Calno Boards" of 2 in. thickness submitted for official fire test have been afforded classification under the "Universal Standards" as affording "temporary protection" (class A). This classification is only accorded to partitioning material after the Committee's official test of 45 minutes' duration at temperatures reaching at least about 1,500 degrees Fah., followed by the application of water from a steam fire-engine for two minutes. The maximum temperature reached was 1,660 degrees Fah. In the second certificate it is stated that the object was to ascertain the resistance of the material as such to fire only, and that a "Calno Board" of one-quarter of an inch in thickness withstood a fire of eighteen minutes' duration, the average maximum temperature reached being about 1,137 degrees Fah. The results of these severe tests prove beyond question the highly fire-resisting quality of this material.

Burglar- and Fireproof Safes and Strong-room Doors.

Nowadays the "enterprising burglar" is a very persevering gentleman of considerable scientific attainments. He knows how to use the oxy-acetylene blow-pipe for cutting steel, and is acquainted with the sweet uses of gelignite and other powerful explosives. Fortunately, our safe makers are able to keep well ahead of him and to trump his tricks. For example, burglars spent a strenuous week-end in an heroic attempt upon a safe at a diamond-merchant's in Holborn, only to find, in the upshot, that the honours (diamonds being trumps) were with the safe makers. An "Anchor Reliance" safe ("Dreadnought" quality) contained the valuables, and the burglars inserted tremendous charges of gelignite in both locks of the safe, plugging the keyholes and edges of the safe with paper and soap. They then covered the safe with numbers of workmen's overalls to deaden the sound, using a fuse to explode the charge. In the words of a member of the firm of diamond merchants, "the force of the explosion was simply marvellous. Pieces of the trade-mark of the safe were blown through the overalls, through a glass partition and into the next room. Pieces of material blown from the overalls were found sticking to the walls in the next room. Inside the safe tin and wood boxes were smashed and bent. In spite of the incredible force of the explosion, the burglars were quite unable to open the safe, which saved my very valuable stock of jewellery and precious stones." A more recent attempt to blow open with nitro-glycerine a safe at a bank at Shepherd's Bush was wholly unsuccessful, the bullion remaining intact.





A representative of this journal has had the pleasure of witnessing interesting tests of some of the specialities of the makers of these safes, Messrs. John Tann, Ltd., whose offices are at 117, Newgate Street, E.C., with works at St. Stephen's Road, Old Ford, E. An "Anchor Reliance," "Stronghold" safe, fitted with Messrs. Tann's patent high-explosives resisting device, had been subjected to the severest possible test by Messrs. Curtis and Harvey, the well-known explosives experts, and had come through the ordeal with complete success. The safe was provided with two locks, into the keyholes of each of which about ¾ oz. of gelignite containing 60 per cent. of nitro-glycerine was packed in such a manner as to fill all accessible spaces in the lock with this high explosive. 1.6 oz. of the same explosive was laid on the face of each keyhole and firmly held in position by sandbags which formed an effective tamping. Messrs. Curtis and Harvey's report is: "The explosives apparently shattered the locks, but notwithstanding this we were unable to open the safe by any mechanical means at our command, and so far as an external examination goes the safe was intact and had with this severe test very satisfactorily."

Our representative examined als remarkable bullion-room door, of illustrations are here shown. This d of extraordinary strength for the resis of every device of the expert burgla drill, the wedge, the oxy-acetylene pipe, the high explosive—and it i course, in the highest degree fireproo crane-hinge and clenching arrange with the interlocking grooves on doo frame, hermetically seal the door a the insertion of liquid explosives, etc. the door is fitted with a triple-chrono time-lock and with a special combi lock, so that there is no aperture o hole.

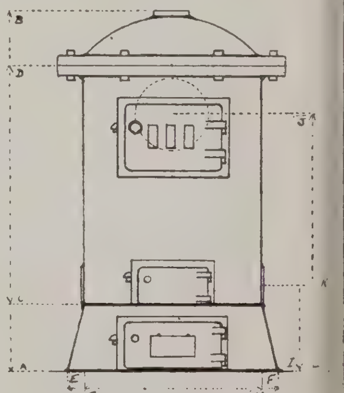
While the use of the oxy-acetylene pipe by burglars it attended with enor difficulties and risks, it is nevert necessary to provide against its po use. Messrs. Tann, as the resu exhaustive experiments, have, in the struction of their safes, adopted v metals and other materials that powerful resistance to the blow Experiments made in the presence c representative prove conclusively the value of the special oxy-acetylene pipe-resisting metal which, with proof unbreakable steel plate and non-metallic substances, and materials and devices render this safe secure against every known mea attack.

Cement Waterproofing.

"Pudlo" has been specified fo pregnating the cement at the Schools.

The "Baseco" Domestic Hot-Wa Boiler.

Leaflets describing and illustratin "Baseco" hot-water boiler have issued by the B.S. Engineering C Lloyd's Avenue, London, E.C., who for it that it can be instantly opene cleaning, there being in it no han man-holes, and no set-screws or plug is a dome-top boiler, and when the do removed the whole of the interior i posed, and every particle of incrust can be removed. The inner circular c of this boiler has a deep pocket form the top, which dips down to the materially increasing the heating su and obviously the efficiency, withou creasing the diameter of the boiler, ensuring high efficiency with low cons tion of fuel. Coke or cinders are burnt furnace, which also affords a useful n of disposal of scullery refuse. Three of this boiler are listed: A, 14 in. 26¾ in. high; B, 16 in. dia., 32¼ in. and C, 20 in. dia., and 40¾ in. high other sizes can be had. The accom ing diagram gives a sectional view o boiler.



ELECTRICAL NOTES.

A New Street Reflector.

this column a short time ago we gave an abstract of Mr.
Gaster's lecture on the present street lighting of London
ıform with the requirements of the authorities. It would
r that the object of the latter in decreasing the illumina-
f public thoroughfares is twofold: First, to reduce the
nation of the main thoroughfares to a sufficiently low
to make identification difficult by hostile aircraft; and,
lly, by the irregular and misleading disposition of the
est units in both main and lesser thoroughfares to deceive
emy aircraft. There is also a third object which is
ed by the results obtained—namely, to avoid casting a
on the sky which would render the work of the watchers,
light operators, and gunners more difficult. The crude
ds which have been adopted of painting the lamp globes
rounding them with a piece of sacking have been the
of much criticism by engineers, and it has been felt that
was room for improvement by the adoption of some
fically designed diffusing medium. With the present
gement it is doubtful whether any of the aforesaid objects
mplished, since the result of obscuring a portion of the
globe is to produce a spot of intense light immediately
l the lamp-post, which must be observable from a con-
ble height.

solve this problem, Messrs. A. W. Beuttell, Ltd., of 109,
ia Street, S.W., have designed an aluminium reflector
i-spherical shape, slightly curved outwards at the rim, with
ble opening at the top so that it may be slipped over the
g lamp and adjusted in the correct relative position
. From a characteristic light-distribution curve pub-
by the makers it is shown that the reflector is of the
xtensive type, with maximum illumination at an angle
legrees, which is as nearly ideal for street lighting as is
able under the circumstances.

The "Sirocco" Air Washer.

y changes have taken place recently in methods of wash-
for ventilation purposes. Up to a few years ago the
nethod was to draw the air through a screen of cokernut
g over which water was allowed to trickle. The screen
her fixed or rotating. This method has become obsolete
to its inefficiency and to the fact that the matting required
l so often, due to the dirt deposited on it. The next in-
ent was a screen of fine copper gauze on which atomised
was directed by a series of sprayers. More recently, how-
he screen has been superseded by baffle plates, which
he moisture and dirt to be trapped and deposited. Such
ratus has been introduced by Messrs. Davidson and Co.,
f Sirocco Works, Belfast, the well-known fan makers.
prises a galvanised iron tank supplied with water by a
ck, with a sump at the end fitted with primary and
ry filters, with the washer itself mounted on top. The
of the washer is open at both ends, where it is provided
itable tapered connections for air inlet and fan suction.
d inspection door is fitted over the air inlet end, and the
pressure gauges, and water connections are fixed on
e. On entering the spray chamber the air comes into
e contact and is mixed with a thick mist of fine particles
r produced by a number of atomising nozzles. Thence
air impinges on a series of corrugated baffle plates
re flooded with a stream of water from a row of spray
fitted over them, so that dirt, etc., deposited on them
ed down into the tank. The washed air is then passed
ple eliminating plates of sheet steel set at angles to the
ent, so that the air is deflected from side to side and
its suspended moisture. This eliminator does not set
material resistance to the flow of air, which leaves the
with an average humidity of 90 per cent. The water
the sprays is continually recirculated by a centrifugal
rawing from the filter sump. The "Sirocco" washers
de in fifteen sizes, and are also suitable for use with
generators.

"Ediswan" Door Heater.

Edison and Swan United Electric Light Company, Ltd.,
ler's End, have designed a special heater for fixing to
tom of a door in such a way that the cold air which
blows under the best fitting door will be warmed and
ught trouble will thus be minimised. The heater con-
a perforated metal casing 25 in. long., in which four
tt "Quartzalite" glowers are mounted on porcelain
These can be connected to a wall plug by means of
length of flexible wire. An automatic switch can be
the heater, in order to cut off the current when
r is opened, and the heater can also be supplied in flush
r letting into the door itself. The whole device is fixed
screws, either to the inside or the outside of the door.

SIMPLEX
Dimmer Fittings

make it as easy to regulate the intensity of your electric lighting as it is to regulate your gas.

These fittings have a regulating switch in the body which allows any of the following lighting combinations to be obtained at will:—

1. *Both lights off.*
2. *One light only on full.*
3. *Both lights dim.*
4. *Both lights on full.*

These fittings are especially suitable for use in Bedrooms, Night Nurseries, Hospitals, Boarding Schools, Dormitories, Lady Students' Hostels, &c.

Any of the SIMPLEX two-light Brackets or Pendants can be so arranged at slight extra cost. Quotation will be given on request.

Special Note.—*The dimming effect is not caused by the insertion of resistance in series with the lamps, as is the case when the ordinary dimming switch is used; consequently no current is wasted when the lamps are dim.*

Simplex Conduits Limited
GARRISON LANE, BIRMINGHAM.

113-117, Charing Cross Road, London, W.C.
16, Corporation Street, Manchester.
72a, Waterloo Street, Glasgow.
61, High Bridge, Newcastle.
11, Denmark Street, Bristol.
96, Whitechapel, Liverpool.
88, Wellesley Avenue, Belfast.
6, White Horse Street, Leeds.
14, Heathfield Street, Swansea.
4, Westgate Street, Cardiff.
1, Crimon Place, Aberdeen.

PUBLISHER'S ANNOUNCEMENT.

THE question of the cost of Advertising is governed entirely by the circulation of a publication. The prices for small Advertisements enumerated below are framed upon the lowest possible basis in order to allow the use of the columns of the Journal for "Wants," &c., at a figure well within the reach of everyone.

Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

Appointments Wanted.

4 lines (about 28 words) 1s. 6d.; 3 insertions, 3s.

ADVERTISER with spare time is open to prepare estimates, accounts, quantities, or keep builders' books, on moderate terms by arrangement; very quick, careful worker, twenty-four years' experience in prices and routine.—Box 8994.

ARCHITECT'S Assistant; nine years' London experience; domestic work and country house restoration, flats and chambers, business and office premises, picture theatres, competition drawings; 50s.; London only.—Box 9120.

ARCHITECT, disengaged owing to war; Lict. R.I.B.A.; 20 years' first-class London experience hospital, sanatoria, and housing work.—Write Architect, 16, Eccleston Street East, South Belgravia, S.W. 9112

ARCHITECT'S Assistant (A.R.I.B.A.), desires berth; design, general and detail drawings, surveying, levelling, specifications and perspectives.—Box 9111.

BUILDER'S General Foreman seeks engagement; age 35 years; carpenter and joiner by trade; good draughtsman and manager of men; used to new or alterations, large or small; good references, etc.; able to get work out at competitive prices; wages moderate.—Foreman, 57, Ormiston Road, Shepherd's Bush, W.

CLERK of Works seeks engagement for large or small works; first-class testimonials and references to London architects; total abstainer.—Address, H., 3, Kempsford Road, Kennington, S.E.

JOBBING Foreman seeks re-engagement; used to first-class West-End trade, up in all trades, used to estimating and carrying out own work; trade, joiner; eleven years last employers.—J., 226, Croxted Road, Herne Hill.

PAINTER and Decorator's Foreman shortly disengaged; seven years with present employers; reliable estimator, capable interviewer, and adviser of clients—Address W. Norgrove, 108, Kilmorie Road, Forest Hill, S.E.

QUANTITIES.—To Architects, Building Owners, Contractors.—Bills of quantities prepared, works measured up, and accounts adjusted on reasonable terms by competent surveyor.—Box 9097.

REINFORCED Concrete.—General Foreman disengaged; well up in most systems of above construction; thoroughly practical and reliable; excellent references.—26, Rosslyn Road, Barking, E.

SHOP Foreman.—Practical Carpenter and Joiner seeks re-engagement as above. Well up in all kinds of joinery work, both in hard and soft woods, stairs, shop, and office fittings, alterations; quick and accurate setter-out, preparing working details; used to all kinds of machinery; good references; six years with last firm.—A.B., 4, Landcroft Road, East Dulwich, S.E.

THE Association of Builders' Foremen and Clerks of Works, 56, Old Bailey, E.C.—Experienced Foremen and Clerks of Works can be obtained by applying to the Secretary, Mr. J. W. Sawyer, 214, Clapham Road, S.W. Competent foremen and clerks of works are invited to join this Association. 8289

Competitions Open.

9d. per line.

CITY OF BRADFORD.

COMPETITION.

The Bradford Corporation invite COMPETITIVE DESIGNS for the RE-PLANNING of STREETS in the Central Area of the City of Bradford. Mr. Reginald Blomfield, R.A., will act as Assessor. First prize £500, second prize £300, and third prize £200.

Particulars may be obtained on application to the undersigned, accompanied by a deposit of £1 1s. 0d., but in case the particulars and plan are returned within ten days after receipt thereof then the deposit of £1 1s. 0d. will be returned

FREDERICK STEVENS, Town Clerk.
Town Hall, Bradford,
19th November, 1914. 9077

Appointments Vacant.

6d. per line.

ARCHITECT'S Assistant, fully qualified, wanted immediately in Birmingham, with knowledge of abstracting and billing quantities preferred; state experience and salary required. —Box 9118.

CLERK of Works required for the erection (reinforced concrete construction, Hennebique method), and completion (all trades) of large block of offices, Bute Docks, Cardiff, at a salary of £3 3s. per week. Applications (typewritten or printed), stating age and experience, together with not more than two recent testimonials, to be forwarded to the architects on or before January 20, 1915. Clerks of Works who have had experience in all trades, as well as in Hennebique method of ferro-concrete construction, only to apply.—Ivor Jones and Percy Thomas, Architects, 6 and 7, St. John's Square, Cardiff. 9119

DRAUGHTSMAN required; used to steel and timber buildings.—Apply, with full particulars, age, and wages required, to Somerville, Ltd., 120, Victoria Street.

EXPERIENCED Clerk for contractor's office required.—J. Hodson and Son, Ltd., Castle Boulevard, Nottingham.

SEVERAL good Public Works Timekeepers required at once; also good Storekeeper.—Apply by letter, J. Hodson and Son, Ltd., Castle Boulevard, Nottingham.

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Miscellaneous.

6d. per line.

BOOKS.—Books on Building Trades, Engineering, Educational, Literary, Technical, and all other subjects; second-hand at half prices; new at 25 per cent. discount; catalogue free; state wants; books sent on approval; books bought; best prices given.—W. and G. Foyle, 121-123, Charing Cross Road, London, W.C.

TO ARCHITECTS COMPETING.
SCHEMES & ESTIMATES FOR ENGINEERING WORK

(Lighting, Heating, Ventilation, and Sanitation), and Architectural Metal Work, supplied free of charge of **STRODE & CO., Ltd.**, 48, Osnaburgh Street, London, N.W.

SECOND-HAND Optical Mart
For the Purchase and Sale of
LEVELS, THEODOLITES, DRAWING INSTRS.
—Clarkson's, 338, High Holborn, London, W.C. (Opposite Gray's Inn Road).

ARCHITECTS and Surveyors.—Partnerships.—Successions—or Amalgamations. For introductions to gentlemen with experience and capital available to purchase, or for particulars of partnerships and practices for sale, town or country, apply to Goodchilds, 29, Southampton Buildings, Chancery Lane, or 329, High Holborn, W.C. The recognised Partnership Agents for the Profession. Mortgages negotiated.

THE Marvel of the Age in Woodwork Catalogues.—Owing to the enormous expense we have incurred in issuing the most up-to-date list which in our estimation can be taken as a standard list in preference to any list in the world, fully illustrated and priced, 286 pages, we have decided to ask our friends to send 1s. 6d. (export 3d. extra), and we will send a copy to any part of the world, together with four-fold brass-jointed boxwood rule; will return money in exchange if not worth 2s. 6d. to you.—C. Jennings and Co., 981, Pennywell Road, Bristol.

Miscellaneous—*continued.*

TYPEWRITING; architect's and build
specifications and reports a speciality; te
monials copied; send for price list; prom
cheap, and accurate.—Address, "Typi
Typewriting Office, 65, Marsham Street, W
minster.

OFFICES to Let.—Architect has good priv
office, 18 ft. by 10 ft. to let, with use of gene
office, waiting room and telephone, in Sa
ville Street, W. For full particulars.—Box

WANTED, good poles, boards, putlogs,
delivered Loco Sidings, M.R., Saltley, Birm
ham; quote prices.—William Moss and S
Ltd., Loughborough.

Contracts Open.

9d. per line.

SWANSEA.

Tenders required for office building, 16
cu. ft. contents.—Quantities obtainable (t
guineas deposit, returnable) from J. Shi
Andrew, Architect, Swansea.

SWINTON AND PENDLEBURY URBA
DISTRICT COUNCIL.

The Urban Council invite tenders for
Construction of Brick Sewers, Concrete
Sewers, Stoneware Pipe Sewers, Manholes,
other Works in connection therewith.

Plans and Sections of the proposed W
may be seen, and Bill of Quantities, Speci
tion, Form of Tender, and other particu
may be obtained on application to Mr. H
Entwisle, Engineer and Surveyor, Cou
Offices, Swinton, Manchester, any day betw
the hours of 9 a.m. and 12 noon on paymen
deposit of £3 3s. by cheque only, which wi
refunded on receipt of a bona-fide Tender
vided the same shall not have been withdr
and return of all documents.

The form of tender and bill of quantiti
be returned in the envelope provided to
undersigned not later than Saturday, Jan
30, 1915.

The Council do not bind themselves to a
the lowest or any tender.

W. T. POSTLETHWAI
December 28, 1914. Clerk to the Coun

BOROUGH OF PLYMOUTH.

TENDERS are INVITED for the CONST
TION of a 54-in. CAST-IRON OUTFALL, a
120 ft. in length, ON PILES, DREDGIN
CHANNEL 630 ft. in length, LAYING a
CONCRETE CULVERT about 208 yard
length, with all INCIDENTAL WORKS in
nection with the carrying out of the
FACE WATER SCHEME of the eastern
level area.

Plans and specifications may be seen,
forms of Tender and bills of quantities
tained, at the Office of the undersigned
payment of a deposit of £5 in cash, which
be returned on receipt of a bona-fide Ten

The lowest or any Tender will not
sarily be accepted.

Sealed Tenders, which must be accomp
by the fully-priced bills of quantities,
be delivered not later than FIVE p.m. on
DAY, JANUARY 18th, 1915.

Conditions, upon which forms of Tende
be granted, may be seen at my Offices.

JAMES PATON.
Borough Engineer and Surve
Municipal Offices, Plymouth.
December 29, 1914.

Auction Sales.

9d. per line.

For Occupation or Investment.
WEST CROYDON.

ROBT. W. FULLER, MOON & FULLE

Will Sell by Auction, at the Greyhound
Croydon, on THURSDAY, 14th JANU
at Six o'clock,
That Commodious and well built FREE
Detached Double-fronted RESIDENCE,
as 13, Campbell Road, containing 8 bedr
3 reception rooms, etc., and good garden.
possession.

Also a PLOT of FREEHOLD BUIL
LAND, almost opposite the above, havi
frontage of 60 ft., suitable for the erect
small houses.

Vendor's Solicitor: A. W. Dennes, Es
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Particulars at the Auctioneers' Office
High Street, Croydon, and at Purley, Cou
Reigate, and Epsom.

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, January 20, 1915. Volume XLI. No. 1046.

No. 119.

(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 20, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1046.

EDITORIAL.

A CORRESPONDENT, whose letter we do not care to publish in full, although a brief reference to the gist of it may be useful, suggests that the present crisis offers "a good opportunity to recover some of the large quantities of building work which at present do not pass through the architect's hands at all." He adds that "if builders had their eyes opened to the very real advantages of employing an architect (the improved plans and enhanced appearance more than repaying them), they would be more inclined to work to architects' drawings." It is to be feared that both these propositions are of very doubtful validity. It would require a great deal of clever diplomacy to establish the very useful conclusion that now is the accepted time to employ architects on work for which, in the comparatively prosperous times of peace, their services seemed negligible. That is the difficulty of the situation, and our correspondent does not formulate any practical scheme for overcoming it. True, he suggests "steadily preaching architecture to the general public," but he gives no hint as to how this could best be done, and that is precisely what we are most anxious to discover.

* * * *

What is necessary is to reach the hearts of the unconverted; and unfortunately the lay periodicals which have this audience are overmuch given to ribald derision of the architect and all his works. From Mr. March Phillipps downwards, nearly all the writers on architecture in the lay Press seem bent on belittling modern architecture, and hence a general impression is created in the public mind that the architect is superfluous. How to correct this unfair and most damaging impression is a problem that clamours for solution; and the Registration movement has for its chief merit, if not for its avowed aim, the rehabilitation of the architect in the public eye, and a more just perception and assessment of the services he is able to render to the community.

* * * *

Until the architect has an authentically recognised status, the public will be slow to believe in him, and will be content to leave itself in the hands of the small builder or the odd-job man for the vast mass of minor work in which, as our correspondent justly claims, it would be in all respects advantageous to engage an architect. In the interests of the public—of their health and safety—superintendence by an architect in numberless instances in which he is now seldom or never employed should be made compulsory. Otherwise the public will go on cherishing the delusion (persistently fostered by builders of the baser sort) that to dispense with the services of the architect is to save unnecessary expense. Good builders do not encourage this fallacy. Not only do they prefer not to assume a responsibility that is not justly theirs, but they are w aware that the trifling fee paid for superintenden yields to the investor a profitable return either in ca or in kind, and often in both.

* * * *

For the business of the builder is to build, and t study of the architect is to devise the best ways a means of building—a term which, for the present pu pose, may be held to include the minor as well as t major operations. By his education and training, his broader outlook and better knowledge of materia methods, and resources, the properly qualified archite is competent to render advice, assistance, and sup intendence that are economically beneficial even in t very small undertakings in which he is too seld consulted. For this neglect the architect hims cannot be entirely absolved from blame. He is apt lay too little stress on the practical side of his prof sion. It is not without significance that in the analys of R.I.B.A. examination results published in last wee issue it apears that the largest number of failures in t Intermediate were on the practical side—in "Sim Applied Construction" and in "Theoretical Constr tion"; while in the Final the most fatal subjects w "Foundations, Walls, Roofs, etc.," "Iron and Stee and "Hygiene."

* * * *

To these figures it would be easy to attach too mu importance. They apply only to students, and are an index to any assumed general apathy of the p fession towards practical details. On the contra they may be taken to indicate the severity of the t which marks the examiners' growing recognition the importance of the practical side, and their de mination to exact from students, who naturally f more attraction in æsthetic exercises, a mastery practical detail which the student often reckons "picking up" in the course of practice. That he d eventually acquire it in the hard school of experie we have not the smallest doubt; and therefore examination figures do not in the least contradict claim that the average qualified architect is fully co petent to deal with matters that are commonly left the tender mercies of the jobbing builder, whose w and whose charges for it go unchecked, to the de ment of the client who imagines that he benefits depriving himself of an effective safeguard agai extravagance and inefficiency. This is a mat which, particularly at the present juncture, could taken up without loss of dignity by the architectu organisations, in conference with those representat of employing builders, who, we are sure, will be fou by no means impervious to the argument of expedie and the principle of "live and let live."

It is only through their organisations that architects n act at all effectually. Professional etiquette, no s than personal dignity, forbids anything in the ture of touting or trumpeting. But much may be ne corporately that cannot be done individually, d the associations may fittingly bestir themves in every legitimate effort towards remedyg a chronic ailment that, owing to the war, has ached an acute stage. There is no doubt that ny architects are suffering much nardship in conseence of the passive attitude imposed upon them by ofessional etiquette, and the least that their societies n do is to use to the utmost every legitimate means influencing the public to provide them with opporities for the exercise of the functions for which they ve received special training. To arouse the public a due sense of its obligations to a modest and retiring ofessional class is no easy task, but it should not be yond the powers of councils and practice committees, o should be easily able to show that, even in minor tters—and, to put it bluntly, we cannot now afford despise the day of small things—it is safer and more nomical to consult an architect than to get the work ne without his advice and control.

* * * *

As if in mockery of the puny efforts of man to kill d destroy, the earthquake which occurred in Italy rtly before eight o'clock on the morning of uary 13, caused in something less than a minute re slaughter and ruin than war can accomplish in f a year. In one swift stroke, two towns were totally troyed, about thirty others were shaken, and some elve thousand lives were lost. Rome escaped the ef violence of the shock, but some of its noble monunts were seriously damaged, the steeple of the urch of Sant' Andrea delle Fratte apparently being worst case, as its collapse seemed so imminent that ffic in the street below it was suspended. The onnade of St. Peter's has suffered considerably, and erson was injured by a fragment that fell from façade of St. Ignatius. Other churches were naged, a statue falling from the façade of St. John teran, and the roof of the Farnese Palace was ken, while the column of Marcus Aurelius in the zza Colonna was so badly injured that there was of the necessity for pulling it down.

* * * *

One of the busiest squares in Rome, the Piazza lonna gets its name from the fine column of Marcus relius set in its midst, which is threatened with truction. Unhappily it is reported that the reliefs, ding spirally up the shaft, and depicting scenes m the emperor's wars against the Marcomanni and er German tribes on the Danube, have been injured ond repair, but unless they have been smashed to vder they can probably be restored by Italy's wonful adepts in this kind of surgery. An interior ircase runs to the height of the column, which is ft., the total height, including the pedestal, being ft. It bears a strong likeness to the Trajan umn, but is crowned with a statue of St. Paul, ch was put up in 1589 by Sixtus V.

* * * *

t. John Lateran, or S. Giovanni in Laterano, a very ly foundation, and, indeed, the mother of churches, it is said to have been in existence for ten centuries en, in 1308, the fabric was almost entirely destroyed fire, had its façade designed by Alessandro Galilei 1734, and before him Borromini had in 1650 done ch to modernise the general appearance. But the ilica holds much of ancientry. Its baptistery, hich afforded a model for all later buildings of the d," was probably founded by Sixtus III., who died in , but tradition has it that Constantine the Great was tised there in the fourth century. Its two oratories e built by Pope Hilarius in 461, and one of them—that of the Baptist—has bronze doors presented by him, while the other—that of the Evangelist—has bronze doors of 1196, and there are some very remarkable mosaics, gold on a blue ground, of the fifth century. The general effects of the appalling earthquake—or, rather, series of earthquakes—are summarised on another page, where a view is shown of the Marcus Aurelius Column.

* * * *

A cablegram from Washington conveys the information that American town-planners are very keenly interested in the rebuilding of Belgium. They recognise that "all civilised nations"—an expression which seems rather pointedly exclusive of Germany and her allies—will be invited to contribute ideas for the rehabilitation of Belgium in accordance with "the best examples of community building," and they are following with interest the conferences on the subject that are being arranged in England. It was to be expected that there would be an honourable rivalry in the good work, and this evidence of it should act as a stimulant towards earnestness and expedition in this country, where, we understand, considerable activity is being shown on the more practical and material as well as on the æsthetic side. Emulousness in such work is all to the good, and we must look to it that our American friends shall not get ahead of us in a matter in which we shall be proud to stand shoulder to shoulder with them.

* * * *

In dealing last week with the sequel to the Lumsden case—that is, with Mr. Lloyd George's promise of remedial legislation, and his instructions that, in the meantime, the legally established interpretation of land-value increment should be held in abeyance—we had not space to include the following observations. As we said last week, the revenue officials had probably no option as to the course they took in penalising the sale of property. But if it was the plain duty of the assessors to exact this tax, it was equally the plain duty of their victims to resist it. Divested of all quibbling, the broad issue was plain enough. It was whether a person buying a piece of land, building on it, and selling the building at a profit, should be deprived of a considerable percentage of that profit on the pretext that the profit represented increment value of the land.

* * * *

Such a check upon enterprise and industry as that which has emerged could never have been contemplated by a sane Government, since, besides being iniquitous, not to say immoral, it would have been impolitic; it would have been a tax on employment, as well as on buying and selling, because it would not only restrict or extinguish speculative building—and the erection of shops and other business premises on speculation is a powerful inducement to business expansion, resulting in the ultimate employment of many persons other than the workmen who put up the building—but would also prevent the rebuilding, enlargement, or improvement of their premises by traders, and would thus be in restraint of commerce as well as of barter. Unhappily this practice of penalising improvements is as old as it is vicious. Farmers know to their cost that whatsoever they do to improve the land they lease—whether by scientific tillage or by draining, fencing, and building—will be charged against them at the next rent audit, and it does not encourage enterprise. Possibly it is this bad old practice that has led to the similar abuse being allowed to creep into the administration of the Finance Act. That it shall not be suffered to taint the promised amendment to that Act must be the peculiar care of those who have the most immediate and most substantial reasons for watching it with unremitting vigilance.

HERE AND THERE.

IT is not often that the architect gets the bare mention of his name in a newspaper notice of a new public building, though exigency of space is not so exigent as to preclude the ingenious reporter entering upon some calculations concerning the number of nails used, the quantity of cement consumed, coupled with the extraordinarily interesting statement that if all the bricks were placed end to end they would reach from Birmingham to Tipperary, via Berlin and Kamtchatka. Hence a biographical sketch of an architect, with a large pencil portrait, filling altogether nearly half a newspaper page, is an event which looms large even in time of War. This is the honour accorded to Mr. Ralph Knott in the "Christian Science Monitor," of Boston, Mass. The correspondent who supplies the accompanying letterpress is in good newspaper form. Commenting on Mr. Knott's success in the London County Hall competition, he assures us that "it is a comparatively simple matter to design plans upon certain broadly indicated specifications and to decide upon a style of architecture most applicable to the nature, environment, and purpose of a large building where the foundational basis is in every way favourable, but when difficulties exist concerning this essential point, the matter is not quite as simple as might at first appear" —which, though the premises may be disputed, must surely take high rank as an excursion in architectural journalism. And better still is the following:— "Naturally, where the building in question is one of national importance, the aim of the architect is to combine all those external qualities which form the attributes of a fine building with internal utility, in such a manner as will produce a superstructure most in accordance with the demand of the age"—the exact meaning of which is difficult to fathom. But all this by the way, for it is a pronouncement of Mr. Knott himself that has prompted the present note.

* * * *

Mr. Knott, in his travels abroad, has been particularly impressed with the drapery stores of Berlin, which, like those great shops in Paris, the Printemps and the Galleries Lafayette, open up an entirely new field in the design of large business premises: and when we have got rid of those by-laws of the London County Council which will not allow more than a certain cubic content in any particular section of a building, we shall be able to do much the same in our own metropolis. "Entering one of these establishments in Berlin for the purpose of examining the interior, Mr. Knott made a few inquiries of the shopwalker. He was agreeably surprised to find what an intelligent interest the man took in the architecture, and during the course of conversation he mentioned to the inquirer no less than eight names of professors of architecture." Here, indeed, is the special point. All of us have occasion to go into large shops, some of them in the very precincts of the R.I.B.A., yet where in all London can you find the shopwalker who knows the name of a single professor of architecture? Why, even when the London dailies are on some popular lay, and seek the architect in his lair, new beings have come forth with the names of Signor Riccardo and Professor Pytle. Yet, if only German "kultur" had been allowed to spread itself benignly on the human race, the pleasure of purchasing a new carpet would have been increased ten-fold by the possibility of a piquant discussion with the salesman on the latest phase of the March Phillipps controversy, and many an architectual tip about competition awards would be forthcoming in the course of one's visit to the hatter and hosier or candlestick-maker. In the eighteenth century a knowledge of architecture was considered part of the education of every gentleman. In the twentieth the shopman might have carried on the torch
of knowledge, with much content to himself and to hi
customers. But in these latter days the Germans hav
been busy with another torch, a torch of actuality, an
fire by that agency has already done incredibl
damage. Better, then, for us, an English Londo
with shopwalkers who cannot tell an Ionic from a
Ironic column, than a German London where ever
shopman knows the names of eight professors
architecture.

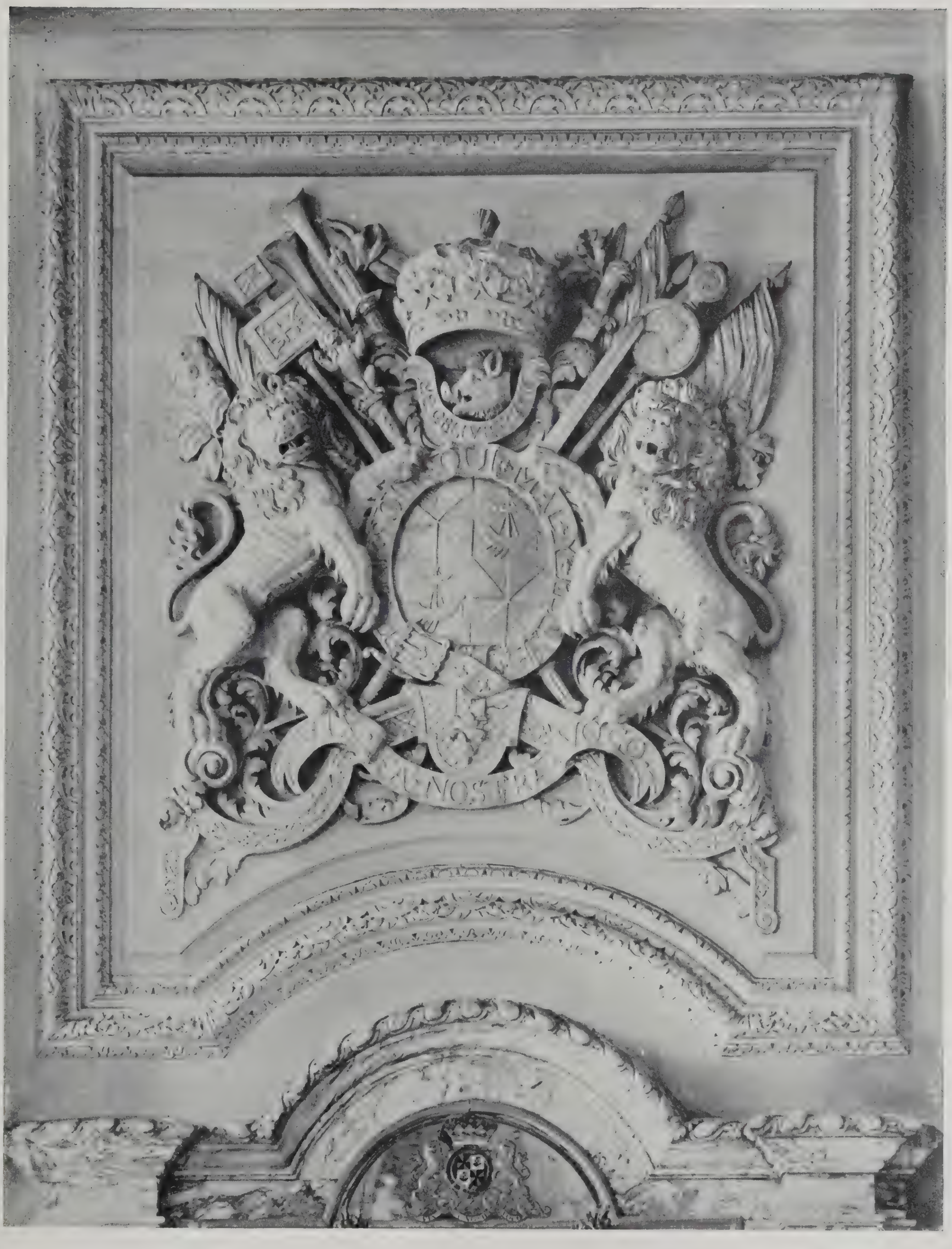
* * * *

One of the direct results of the War, so I read,
to be a boom in small houses for the middle classe
Professional and business men who have been h
rather hard financially are making considerable redu
tions in their expenses, and so from comparativel
large houses costing £70 a year, they are searching
hundreds for "nice little houses" of £30 and £4
All the more reason, accordingly, for the closest atte
tion to planning on the part of the architect. That th
is a subject of keen interest, ample proof was give
by the competition for the planning of a semi-detache
suburban house which was held by this Journal
couple of years ago, when more than four hundred ar
fifty competitors toiled at the problem. And recalli
the many good schemes that were evolved in th
competition, I would commend to every designer t
necessity for meeting the requirements of the tena
in matters of planning and equipment alike. Amo
the details of the latter is the item of hot-water suppl
The Canadians and the Americans, so I have alwa
understood, instal their holocaust in the cellar as pa
of the customary domestic equipment, and there
such an equal heat throughout the house that one c
pass from room to room in a glow of comfort.. But
English cling to our own system of cosy sitting-room
where we sit around the jolly fire on a winter's nig
and pass thence in due time through cold passages to
icy bedroom; and this being the inflexible custom, t
least the architect can do is to give sympathetic atte
tion to the hot-water supply. with an eye for t
working expenses. I am sure that the conditions
the modern economical household, with its g
cookers and geysers, are not met by the old-fashion
kitchener, with a boiler of unknown extent and co
dition, hidden away somewhere in the mysterious ba

* * * *

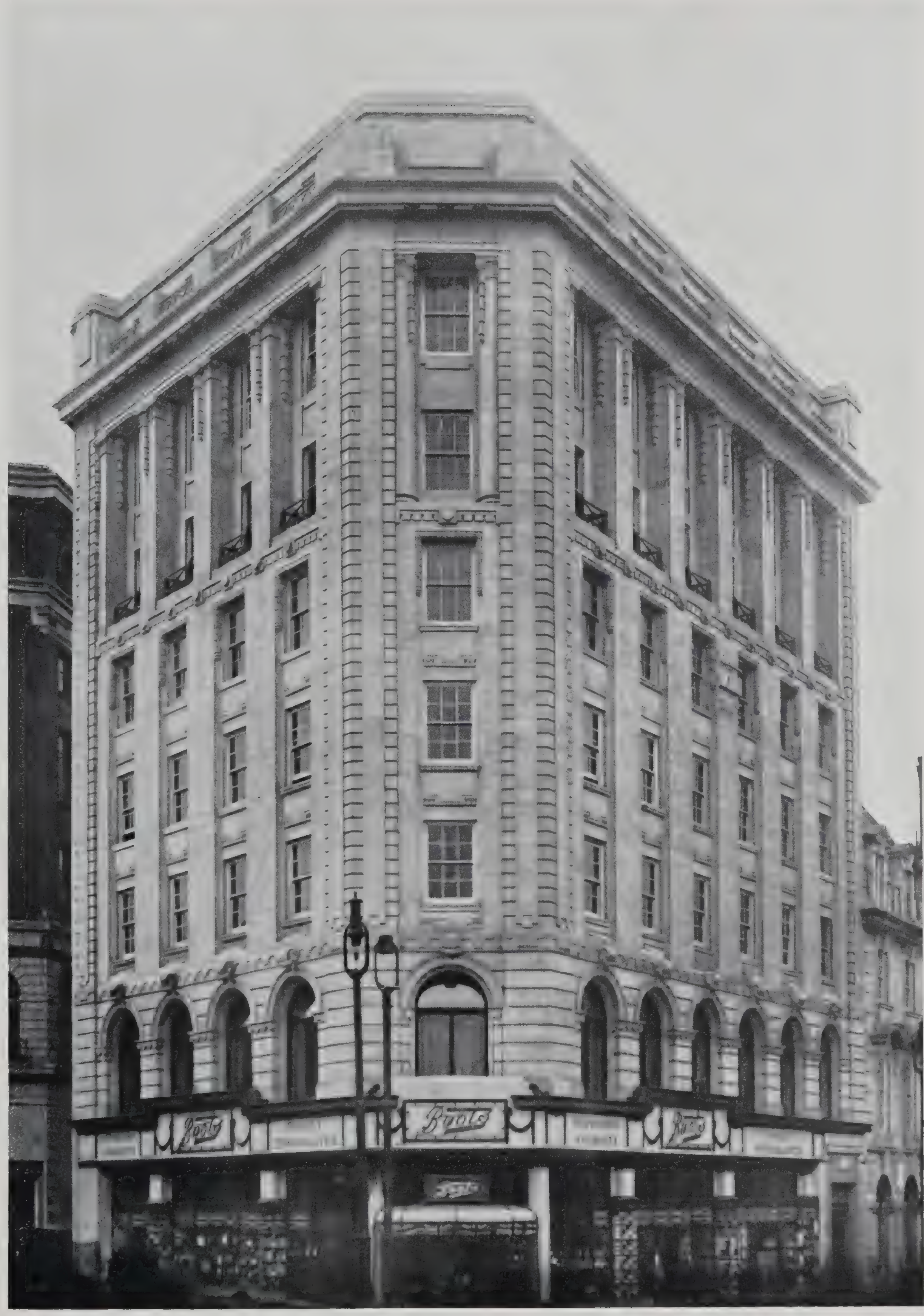
In the present hey-day of the Press Censor we
accustomed to be thankful for what we receive in t
official communiqués, and, thinking of these, one
prompted to suggest the following as a topical equi
lent for a report on work in progress: From foundati
to roof the day has passed quietly. The bricklay
and masons have done as little as they usually do, a
the foreman has done less. During the dinner hour
attempt was made to squeeze in some shaky timb
but without success. In the region of the first floor
plumbers have been hard at work for many hours
the bathrooms, without, however, any visible res
though it must be admitted their vocal talents
considerable. Thunder was heard in the afterno
and the joiners were so upset as to be obliged to ce
work for some little time, and the explosion of a mot
car tyre made all hands 'down tools,' under
impression that the Germans had arrived. In
region of the basement, putty and paint are coverin
multitude of sins, and it is confidently believed t
nobody will now notice the crack in the board-ro
panelling. From 3.30 to 4.40 the concrete and st
men read a chapter from 'The Only Way,'
agreed that it was, which brought about a lively ar
ment with the foreman. At five o'clock, after a per
of great stillness, the architect was espied in the
tance, and the scene at once became one of gr
animation. To sum up, we have made inapprecia
but satisfactory progress.

UBIQUE



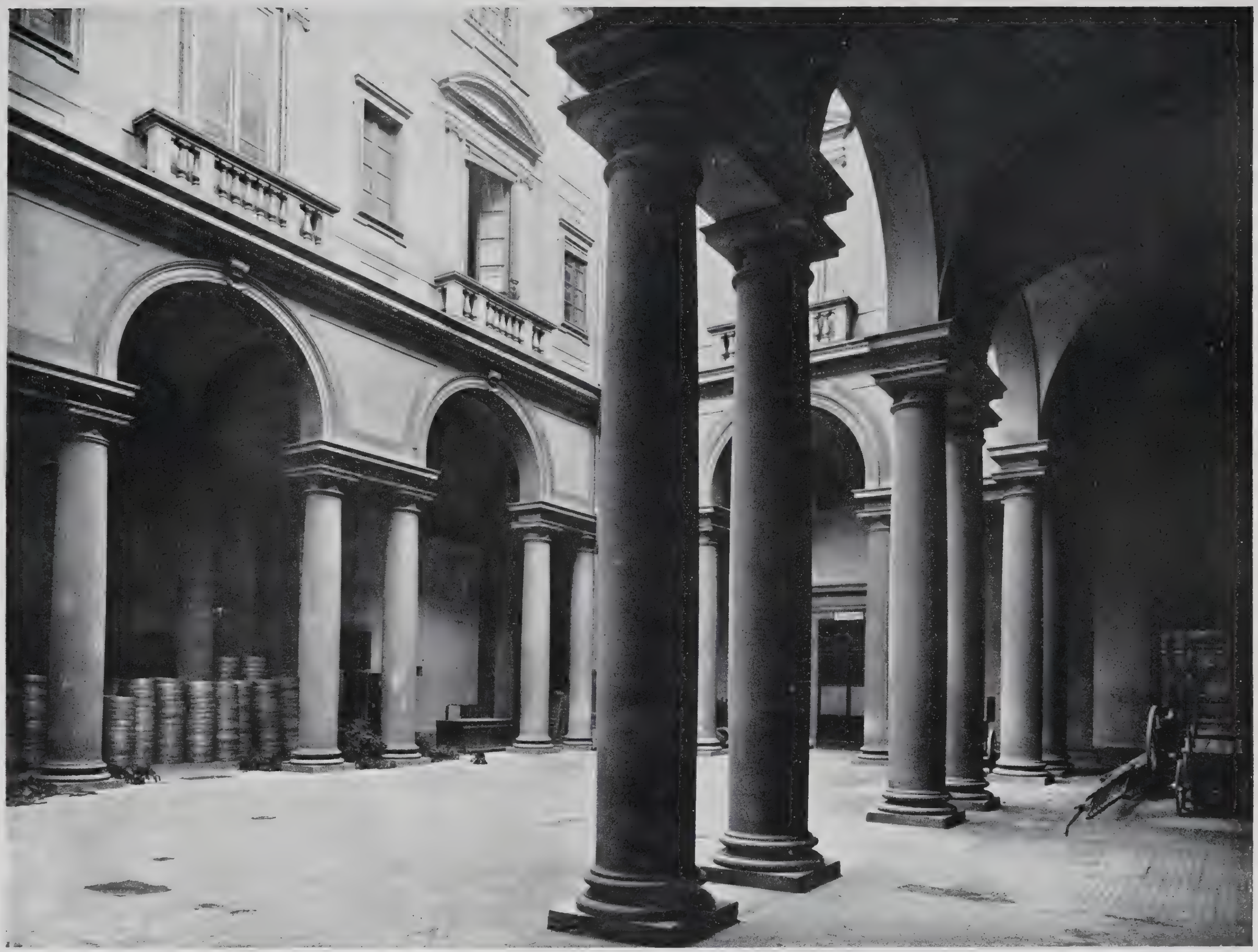
DETAILS OF CRAFTSMANSHIP. III.—CARVED TROPHY, SUDBROOK PARK, PETERSHAM.

JAMES GIBBS, ARCHITECT.



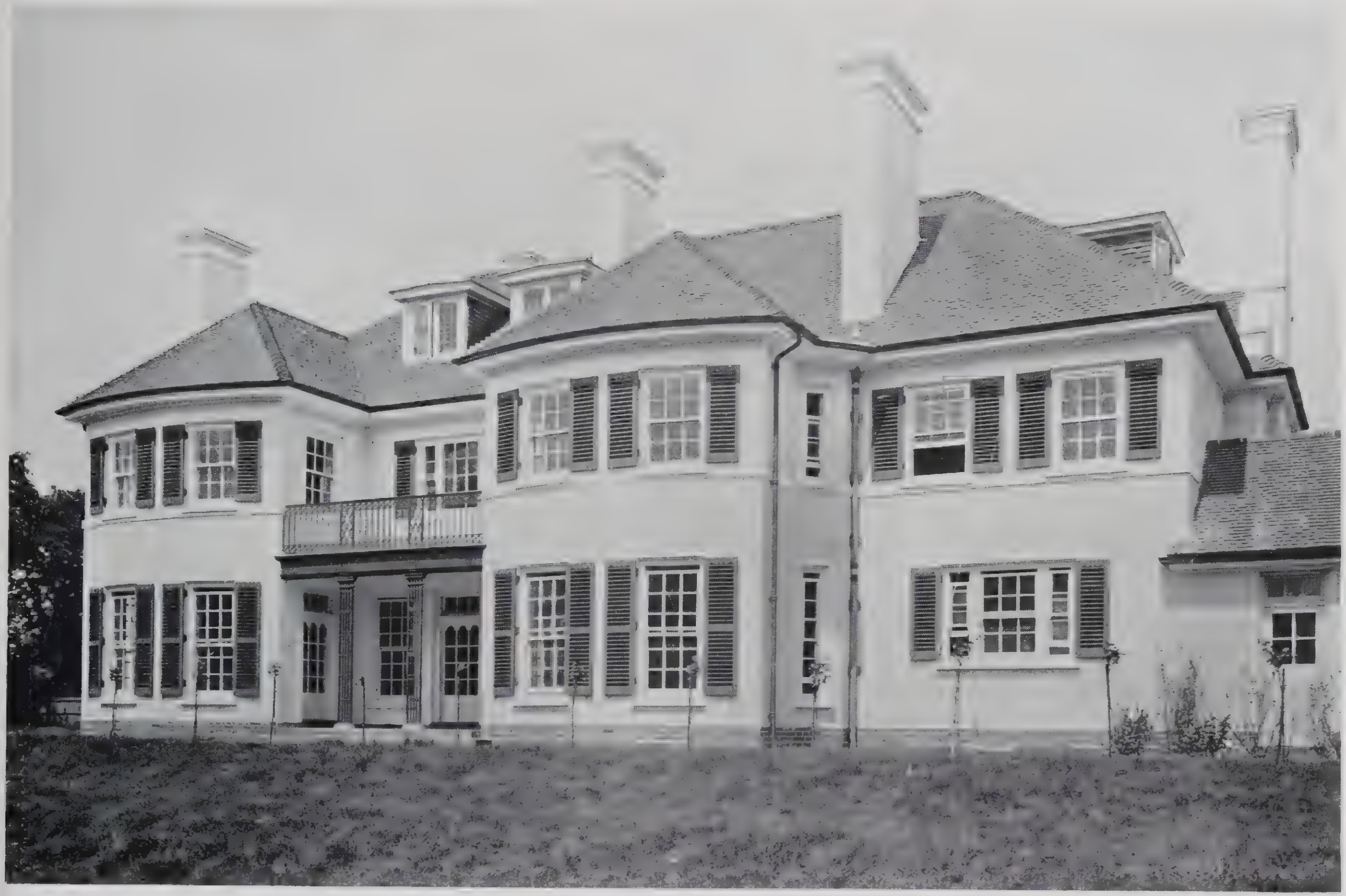
CURRENT ARCHITECTURE. XCIX.—PREMIER BUILDINGS, CHURCH STREET AND HANOVER STREET, LIVERPOOL.

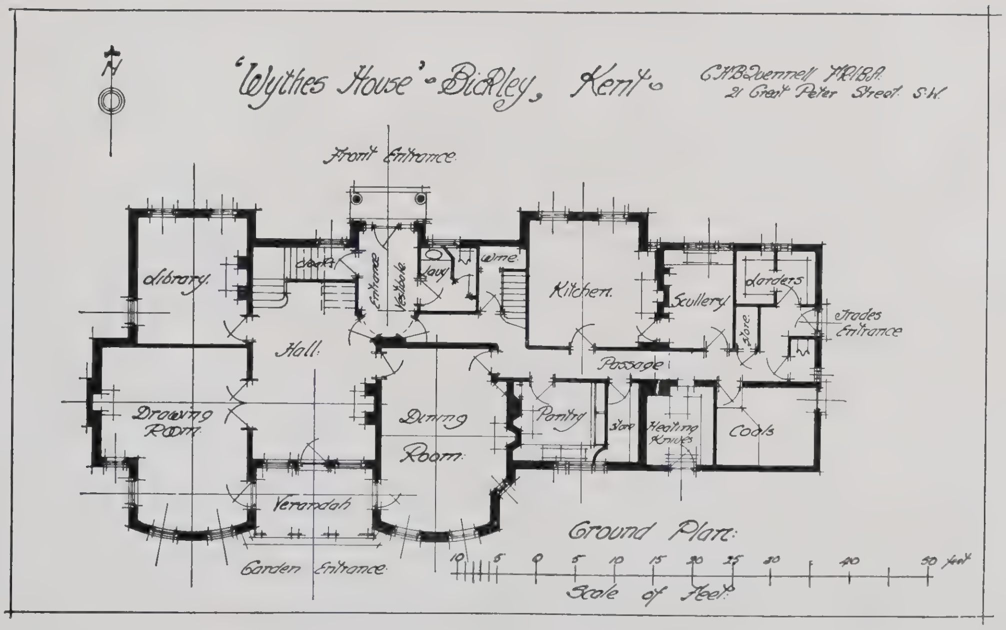
G. DE C. FRASER, ARCHITECT.



FLORENTINE PALACES. VII.—PALAZZO NONFINITO: THE COURTYARD.

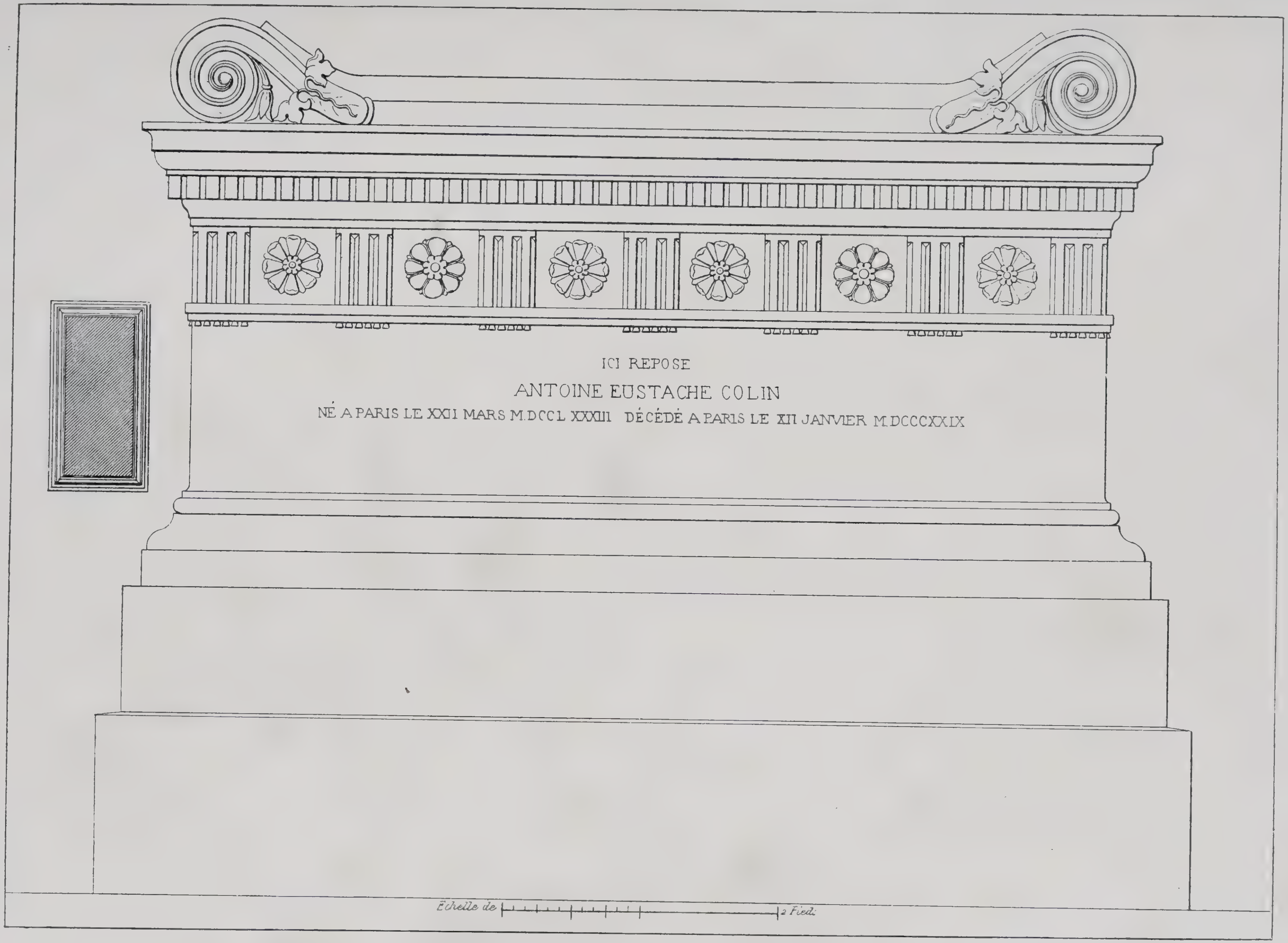
BERNARDO BUONTALENTI, ARCHITECT.





MODERN DOMESTIC ARCHITECTURE (SERIES II.). II.—WYTHES HOUSE. BICKLEY. KENT.

C. H. B. QUENNELL. F.R.I.B.A., ARCHITECT.


ICI REPOSE
ANTOINE EUSTACHE COLIN
NÉ A PARIS LE XXI MARS M.DCCL XXXIII DÉCÉDÉ A PARIS LE XII JANVIER M.DCCCXXIX
Échelle de
2 Piedi

FRENCH MONUMENTS. I.—COLIN MONUMENT, CEMETERY OF PÈRE LACHAISE, PARIS.

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UNIVERSITY OF ILLINOIS

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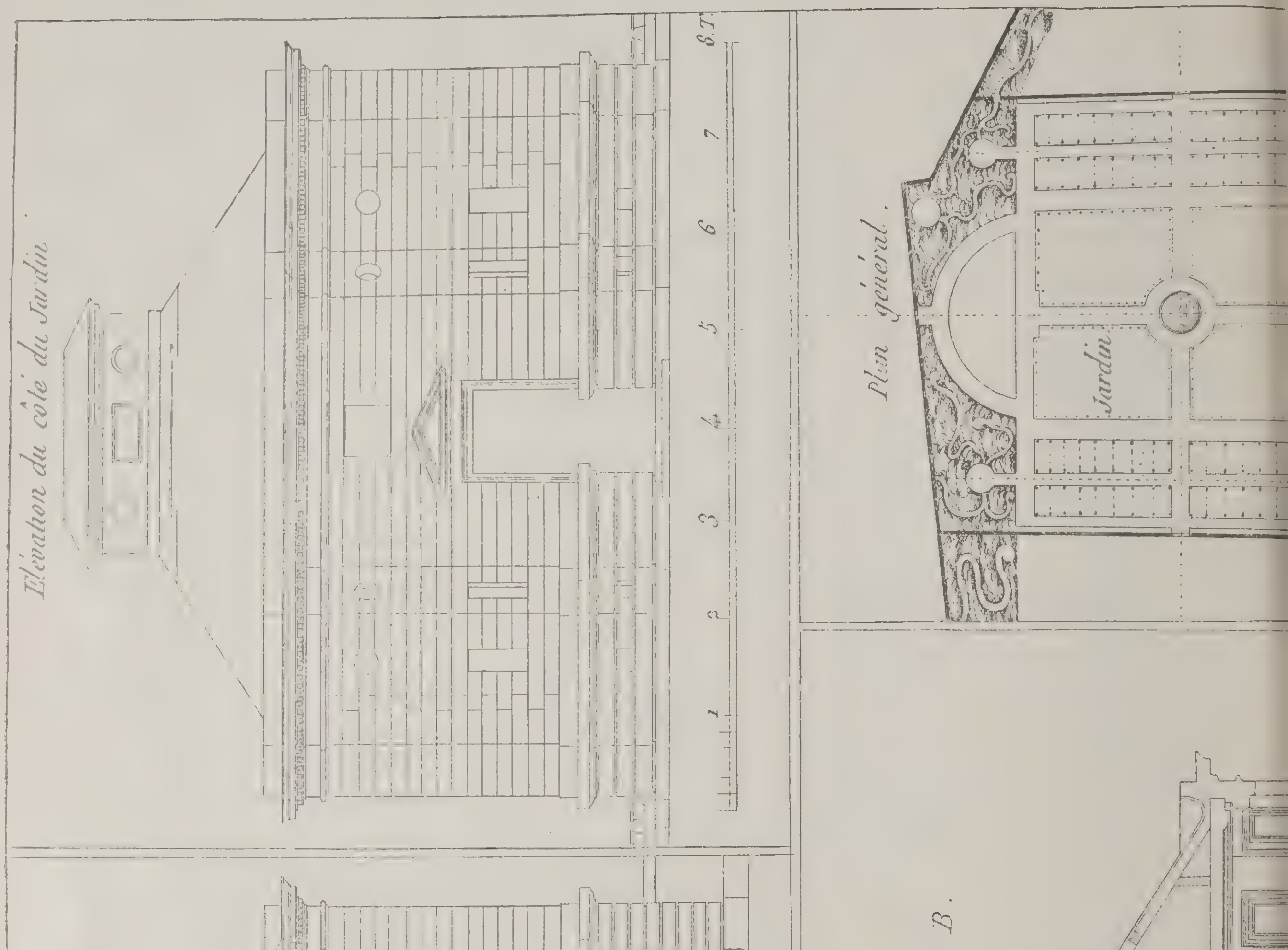
Élévation du côté du Jardin
Élévation du côté de la Cour
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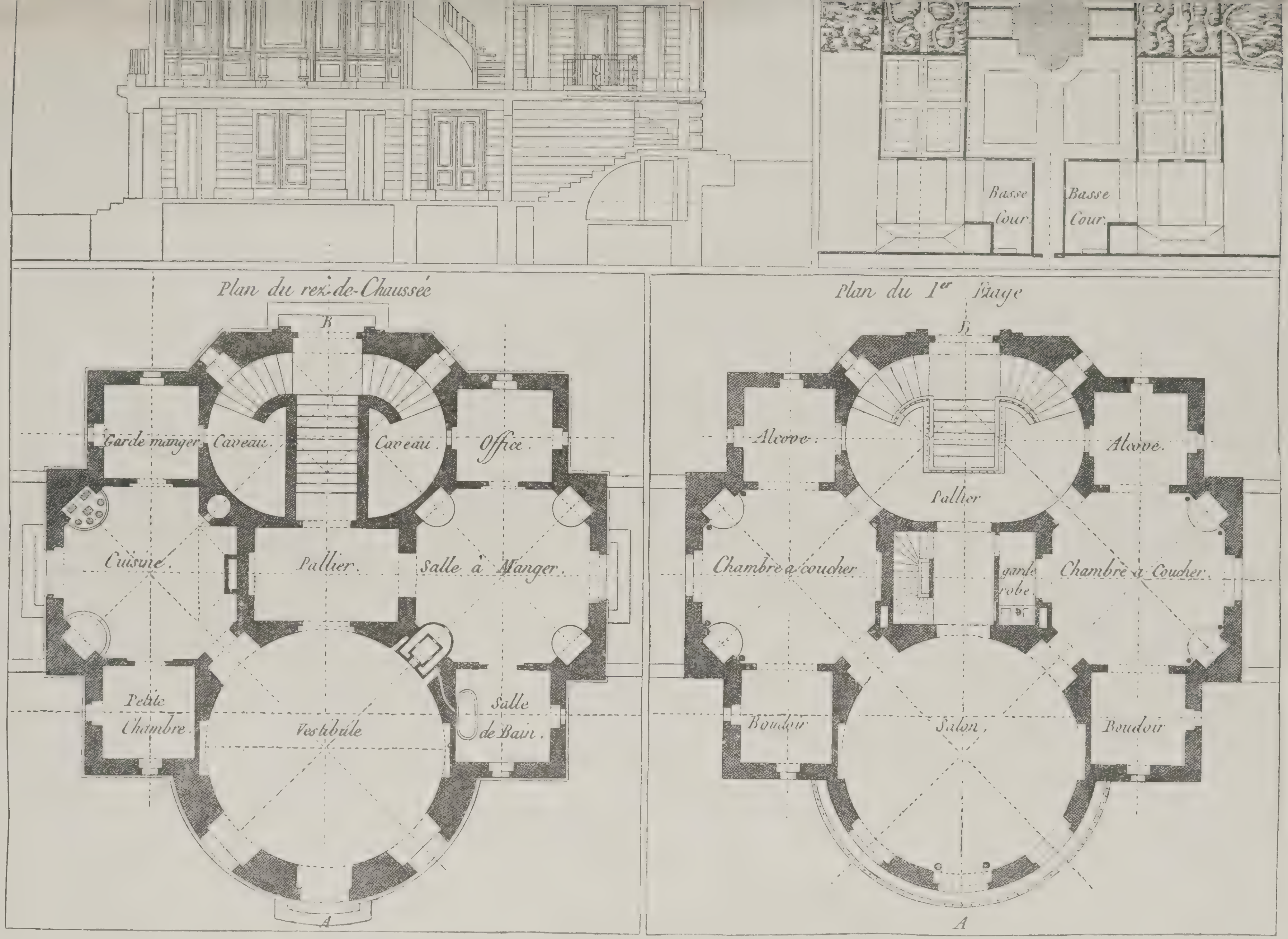
Plan général.
Jardin
Coupe sur la ligne A B.



DESIGNS FROM KRAFFT. I.—HOUSE AT MEUDON, PARIS.

GUYT, ARCHITECT.

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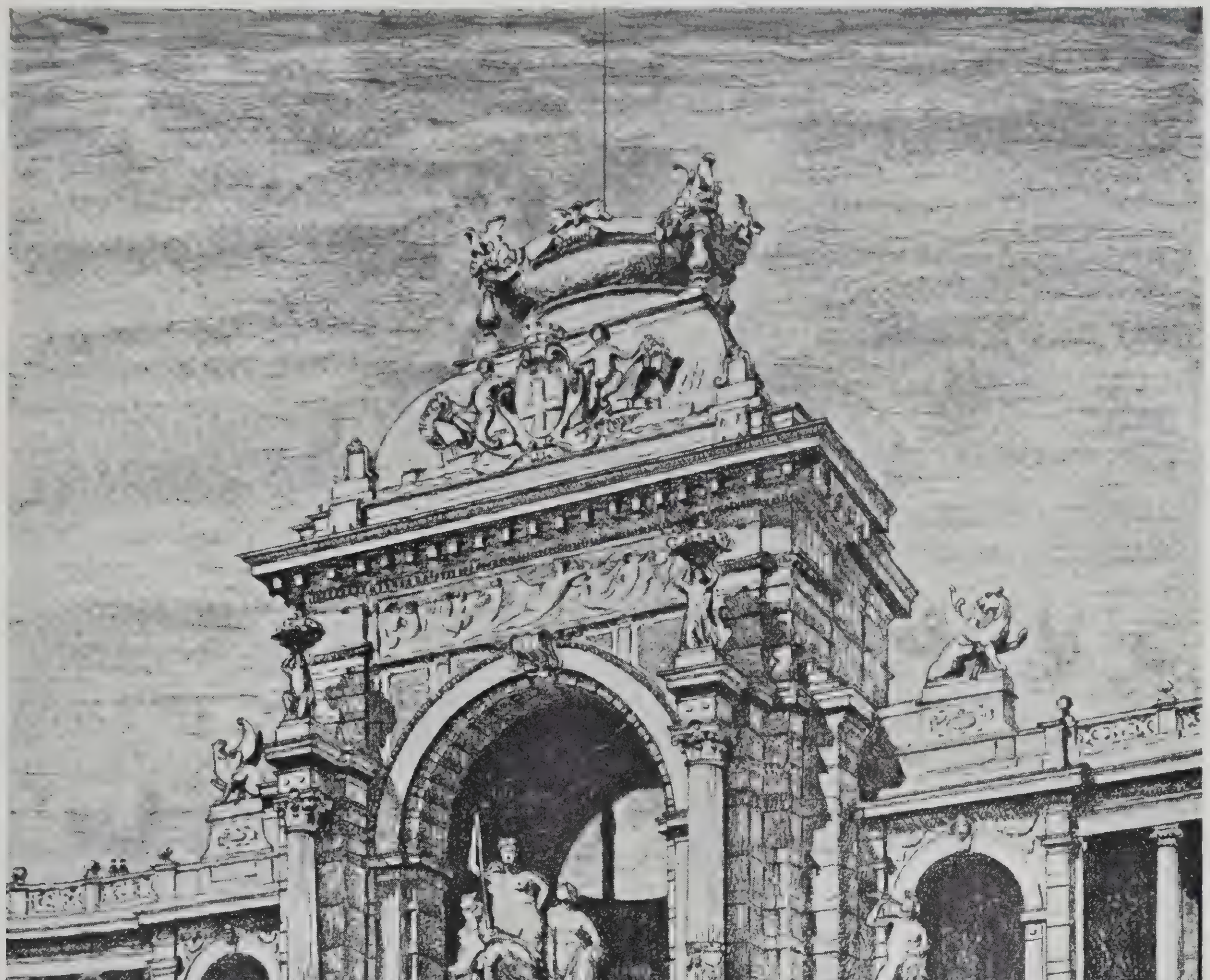
OF THE
UNIVERSITY OF ILLINOIS



STUDENTS' DRAWINGS. XXXVIII.—PALAIS LONGCHAMP, MARSEILLES: DETAIL OF CENTRAL FEATURE.

DRAWN BY H. BARTLE COX, A.R.I.B.A. ESPÉRANDIEU, ARCHITECT.

THE PLATES.

Coat-of-Arms, Sudbrook Park.

HE "villa" at Sudbrook Park, Petersham, Surrey, now used as a golf club-house, was built for the Duke of Argyll from James Gibbs's design about 30. The chief feature of the interior is a cube room of ft., richly embellished with carving. On one side is exceptionally fine chimneypiece, of which the rved trophy is the main feature. This is in pine. e arms are, of course, those of the Duke.

Premier Buildings, Liverpool.

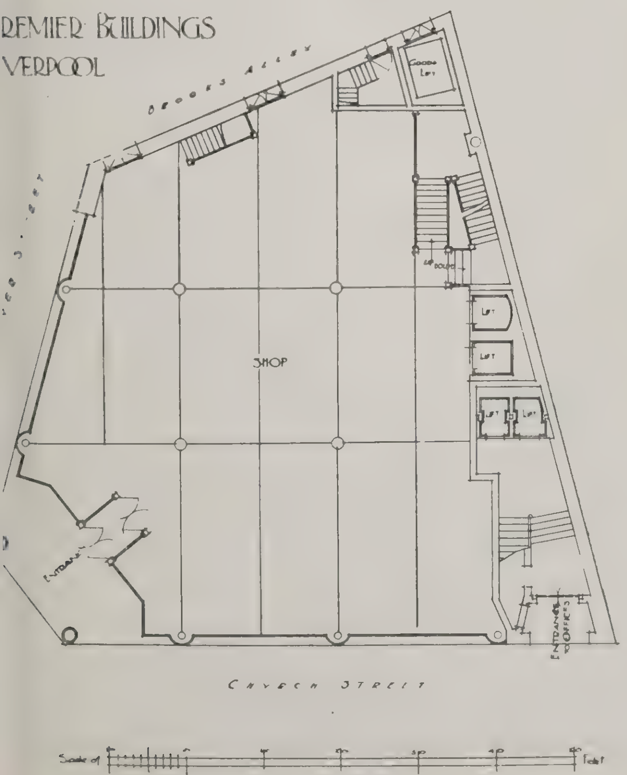
This new block of business premises, recently comted to the designs of Mr. G. de C. Fraser, of verpool, occupies a corner site at the junction of nover Street and Church Street. The area of the e is about 525 yd. super. The premises consist of asement and eight floors, the lower portion being for shop purposes and the upper floors as offices. e floors and roof are of reinforced concrete, suprted by steel beams and columns, the external facing ing of Portland stone. The total cost was about 3,000. The total rental value is £4,500 per annum, owing a return of about 6½ per cent. on the outlay. essrs. William Tomkinson and Sons, of Liverpool, re the general contractors. The Otis Company pplied four electric passenger lifts, and Messrs. aygood-Otis, Ltd., the goods lift. The subntractors were: Plastering, Messrs. John Tanner and ns, Liverpool; tiling, Craven, Dunnill, and Co., Ltd., ropshire; steelwork, McIntyre and Jones, Liverol; heating, Jeffries and Co., London; shop fronts, edk. Sage and Co., Ltd.

Palazzo Nonfinito, Florence.

This was commenced in 1592 by Buontalenti, but he l not live to carry on his work to completion—hence e name of the "unfinished palace." The courtyard s been ascribed to Luigi Cardi (Cigoli), a pupil of ontalenti, but it is probable that he only carried out s master's design. The entire building is remarkle for its fine vigorous scale and originality in treatent.

"Wythes House," Bickley.

This house, by Mr. Quennell, forms part of the velopment of an estate which is being carried out by Mr. George W. Hart. Externally the walls have a red-brick base, with Kent stocks above, covered with a very fine rough-cast with plain banded smooth margins to windows and string-courses; the trellis veranda and shutters being coloured green. The roof is covered with local Kent tiles.



Monument in Père Lachaise, Paris.

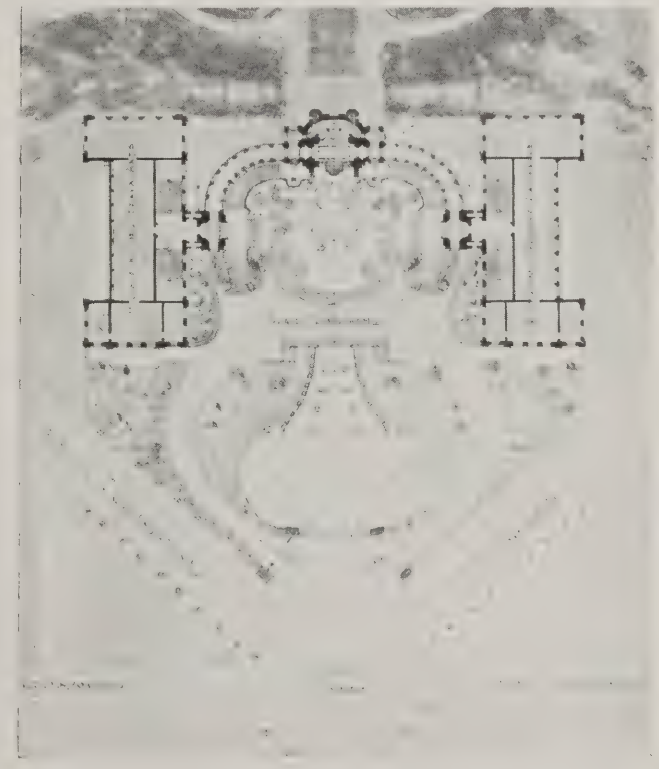
In due time the subject of the design of monuments to those who have fallen in the War will assume great importance, and in view of this we have thought it to be of service to illustrate some of the fine monuments in the great cemetery of Père Lachaise, Paris. The French have always excelled in the design of monuments, and it is fitting therefore that we should turn to their noteworthy achievements. The monument to Antoine Eustache Colin, here shown, offers a fine example of a pedestal with architectural enrichment, simple and dignified. It dates from 1829.

A Country House from Krafft.

Among the series of country houses from the valuable work by Jean Charles Krafft—a celebrated architectural draughtsman of the early nineteenth century—are many possessing exceptional merit as architectural compositions, and the finest of these we propose to publish.

Palais Longchamp, Marseilles.

This fine composition, not sufficiently well known in England, with its museums, colonnades, and chateau d'eau (shown on the drawing by Mr. H. Bartle Cox, A.R.I.B.A., of Paris), commemorates the supplying of Marseilles with water from the River Durance, which the central figure of the group represents. To the architectural student the great lesson which the building conveys is the planning of the ensemble and its disposition on a wonderful site in a high part of the town as the termination to a rising boulevard, with public gardens at the back, seen through the colonnade. There is a difference of about 130 ft. between the level of the Place Bernex (see plan below) and the summit of the chateau d'eau. The frontage of the building is about 400 ft. The lay-out of the water basins is said to have influenced the design carried out in front of the Trocadéro in Paris. M. Espérandieu, the architect, also designed Notre Dame de la Garde, at Marseilles, a church well known to sailors.



PALAIS LONGCHAMP, MARSEILLES.

HOUSE-PLANNING IN RELATION TO FURNITURE AND FITTINGS.

[SPECIALLY CONTRIBUTED BY R. W. COLLIER, F.R.I.B.A.]

THERE is, especially among younger architects, a lack of apprehension of the immediate bearing which furniture and fittings have upon the planning of the building which is to receive them, and in domestic architecture this fault is the more conspicuous. The furniture is expected to find its place in the various parts of the house somehow or other without there being any precise idea in the mind of the architect how this end is to be attained.

Whether the house be large or small the planning should be governed more or less by the furniture it is to receive and the positions it is to occupy; while in the case of the small house this consideration is a more pressing matter than with the larger one.

Extraordinary mistakes are frequently committed in the planning of particular houses as regards furniture, and the family is likely to experience a disagreeable time when they move in, if no place can be found for this or that article. The piano may have to be placed across a corner of the drawing-room, thereby monopolising too much floor space. The bookcase must go on the landing, which is the only place where there is room for it; the four-post bed with too high a canopy must be reduced somehow, and in various other ways the furniture may, in spite of the accommodating spirit which is compelled by the circumstances, prove very annoying and troublesome.

The planning of a bedroom so that there is no proper position for a bed affords a diverting perplexity which may stand to the credit of the architect. Then as regards wall space, the architect may have been induced by considerations of the picturesque to keep the wall-plate too low down to allow of a wardrobe or cupboard standing anywhere against a wall; nor can its doors be opened without blotting out a window or interfering with a mantelpiece or the opening of a room door. On reflection innumerable other instances of inconveniences should occur, against which to be forewarned is to be forearmed.

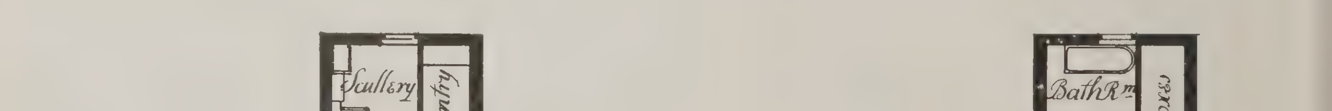
The wishes of the lady of the house in the matter of furnishing are becoming more generally respected, and in a recent "Ideal Homes" competition a lady acted on the committee of assessors. So the architect who has not duly considered the problem of the furniture from the feminine standpoint will be liable to incur scorn and denunciation later on, however well he may have done according to his own architectonic lights. Unsparing criticisms echoed from the servants' hall will probably reach headquarters, which, from the mistress's point of view, are far from being negligibl and the denizens of the offices who are apt to regai the architect as a superfluous personage, like the r "in the house that Jack built," will vote him a nui ance; nor are their strictures always without justil cation.

It may be that the scullery pump has to be worke left-handed; the oven door is hinged on the wron side for light; these, perhaps, are hardly matters furnishing. Well, then, no space has been allowed f the kitchen fender, so that the maid's dress gets tor in coming in at the door. The back door will not ope properly because the jack-towel roller gets in the wa The door threshold, too, is on the floor level, so there no room for a mat. In instances such as these, of sma details overlooked, the architect may in due cours find himself in unpleasantly close acquaintance wit domestic exigencies.

Then, again, a woman's notions of furnishing a generally so different from a man's, while the archite may find it surprising how often he is in the wrong! woman insists on the furniture being peppered abo over the drawing-room at great sacrifice of space; sh will probably like the piano across the corner of th room; the man prefers furniture stowed away nea the walls, with plenty of clear floor space. The arch tect will therefore understand that a house is, as a rul properly planned for furniture if it meets the lady views in that regard.

The Staircase.

The staircase often enough proves an uncon promising if indispensable fitting; and the youn architect is apt to be misled by the promising manne in which it works out on plan, while the real problen how it is to be schemed, appears only when the sectio has to be considered, and then perhaps it is plain th a flight has to be carried across a window which ha contributed so much to a captivating elevation. A element of strife and discord is thus occasioned whic will require to be redressed by the resourceful arch tect without importing inconvenience and danger int the scheme. There are certain charms of myster about a tortuous staircase after the learning has bee driven home by knocks and bumps, but a visitor wh has not mastered its peculiarities is at a speci disadvantage. The new servant, too, carrying up th tea-tray never suspected that awkward diagonal rise which cuts the quarter landing in two halves. Th



Ground Plan

1st Floor Plan

SUGGESTED PLANS.

chitect is not served with a bill for broken china, but
orally he might deserve to be. Even now, in these
tter days of domestic arrangements, the most
vkward bits of staircase planning are occasionally
rpetrated by the architect. The start of the stairs is
metimes thrust right into a narrow hall space, so
at there is a respectful detour to be made, or the
ternative of an ugly fall over the offending
ojection.

On a level site it is almost inexcusable for the ascent
a staircase to be divided at intervals to serve
fferent levels about the house, especially when there
not a good light obtainable where the steps occur.
ch an arrangement generally implies some faulty
anning, not merely as regards the staircase itself, but
sewhere, and however aware the architect may be of
ese pitfalls he is nevertheless apt to fall into them.

It is not often much before the mind of an architect
hether or not it is possible for a coffin to be carried
rectly down his staircase, but a day may come when
will be put to this very legitimate test.

The Fireplace.

Ingle-nooks which provide a cosy corner are
nerally out of place nowadays when there are fire-
aces provided almost everywhere. When a fireplace
driven out of the room into an ingle-nook the room
oper is often almost uninhabitable in cold weather.
shaped sitting-rooms, too, are useful only for people
o cannot get on together. The present writer knows
a drawing-room in a large house designed by an
chitect of repute which was of this shape, and a more
sociable penitentiary never was contrived, with a
eplace in one of the limbs and cold neglect in the
her.

In choosing the position of fireplaces in sitting-
oms a common fault is to be observed. Sometimes
fireplace is so near a door that it is impossible for
rsons to assemble around it; the prospect, more-
er, of draught from the door is in itself enough to put
t of mind the very idea of comfort.

A "through-the-looking glass" repeat of the dining
d drawing-room, which apparently is being favoured
some architects, is certainly not an interesting
rangement; nor is it interesting or dignified to make
e dining and. drawing-rooms adjoin each other.
ople going in to dinner like to traverse the better
rt of the house, which provides guests with some-
ng to talk about.

The Scullery and Out Offices.

Passing to the working parts of the establishment,
w often one finds a cramped scullery and offices
nerally. In a house of, say, ten or twelve bedrooms
s not too much to provide that the offices, not includ-
outbuildings, shall cover as much area as is required
the whole of the family part of the house. It
ould be fully realised that the offices are both the
arf and warehouse of the establishment, and ample
ace for goods and handling them should be provided.
en, again, the kitchen is often cramped and wrongly
and the scullery reached only through it, and so
ch beyond it that in working there is a continual
nflict in the commissariat. The removal of refuse
m the scullery should be possibly only directly
ough an outside door, while the kitchen stuff, upon
ich the cook sets much store as a perquisite, should
ver be allowed to accumulate anywhere, and
tainly on this account dark cupboards with doors
d better be kept out of the scullery altogether.
chitects have been blamed for not providing cup-
ards; now these are being put where they are not
nted, and inconveniently, very often, where they
.

Housemaids' Closets and Linen Rooms.

There are two closets which might claim more atten-
n than they often receive. Not the w.c. so much,
this has received the close study of the architect for
ny generations, but the housemaid's closet demands some attention. This apartment, although not to be used as a domestic's boudoir, should at least be capable of containing, besides a sink, all the hot-water cans, brushes, brooms, and implements for use upstairs; and for these to be properly accommodated a space three times the size of what is usually provided is necessary.

Next, the linen closet should not open into the bathroom, or the result will probably be a complaint of damp sheets. Adjoining the bathroom is, of course, a proper position for a linen closet, and then there should be a current of dry air through it when closed.

Fitted Bedrooms.

The tendency of the day is for people in fair-sized and large houses to secure every possible convenience, and this must involve very large increase in expense. Fitted-up lavatory basins in bedrooms, with hot and cold water laid on, are becoming the regular thing, and a bathroom to every bedroom in the better parts of the house is becoming more favoured. Men with their sporting proclivities are now demanding immense quantities of water, and consequently a vast deal more water, hot and cold, is used. Instead of twenty gallons per head in a household some forty years ago, about forty gallons per head are now required. The separate furnace has to be provided somewhere in the offices, and the considerable storage of water required can no longer be got in snugly beneath the ceiling over the back-stairs.

All these appointments and appliances are thought to make life go very smoothly, and it is not the function of the architect to advocate the stoical facing of hardships as the easiest way through life; but he must enter *con amore* into the grim seriousness of the struggle which attends existence as it is understood in this hurrying and exacting age, and see to it that he meets its demands. He must, furthermore, in providing for all the needs and desires which go to make up the complex of modern life, pay out the golden thread of the service in his art which shall render a fabric of mere utility a thing of beauty also.

LONDON ARCHITECTURE IN 1914.

THE "Manchester Guardian," whose architectural notices are the best that appear in the newspaper Press, gives the following estimate of architecture in London during the past year:—

In the absence of important Government work, we must look to our new great thoroughfare, Kingsway, for the latest events in London building. Here we have had considerable activity for several years, and now little space remains to be built upon. The result is not all that could be desired, and it is to be regretted that the London County Council abandoned their original plan to control the main architectural lines of this important thoroughfare. The most notable building just now completing is perhaps "India House," which occupies the eastern corner of the Kingsway and Aldwych. The boldly splayed corner façade, surmounted by a broad octagonal tower, makes a strong and effective composition. The detail, however, is ill-digested and savours more of smart draughtsmanship than of architectural sensibility, and fails accordingly. Black marble and granite are used with the Portland stone, but with little sense of their decorative possibilities, and the iron windows are thin and meagre. We could, however, bear to see the corner treatment of this building repeated on the opposite corner. Together they would make an impressive and balanced entrance to Kingsway from Aldwych.

The new Schools of Architecture and of Chemistry for London University in Gower Street and Gower Place are units of a scheme for completing the University group. Professor Simpson, in designing this work, has followed closely and with some skill and much sympathy the general lines of Wilkins's original group.

Professor Simpson's scheme provides for the ultimate completion of the quadrangle, and includes a colonnaded entrance screen in the centre of the Gower Street front.

The completion of Messrs. Adshead and Ramsey's cottages for the Duchy of Cornwall in Kennington was one of the events of the year. The scheme is interesting for its architectural qualities and as an important essay in town-planning. Although they cannot be taken quite seriously in relation to the problem of city housing, the smaller houses are very attractive by their simple outline and quiet, restrained, and almost non-existent detail. The larger houses are not so successful—they are too pretentious for the size of them, and thereby lose the spirit of the period which inspired them. The balconies over the pedimented porches are very unfortunate.

Regent Street passes, and with it a part, and a large part, of London's own intimate personality. Norman Shaw laboured in vain. Robinson and Cleaver's new premises are of a piece with the rest of the commercial assertiveness of modern Regent Street. Regent Street as we now know it might be anywhere—except Paris or Fifth Avenue.

BUILDINGS AFFECTED BY THE ITALIAN EARTHQUAKE.

In the Editorials of this issue we deal with the general aspect of the terrible earthquake which occurred last week in Italy. Some detailed particulars may here be given.

Of the two towns which appear to have been the greatest sufferers by the earthquake, Avezzano and Tagliacozzo, the former is the larger, but the latter is the more beautiful, and is probably better known to English people. Both lie on the main line of railway from Rome to Castellammare Adriatico. Avezzano is a country town with a population of about 10,000 people, and is chiefly known for the fine old castle at one end of it, which now belongs to the Barberini, but is still known as the Castle of Colonna, and was built in 1490 by Gentile Virginio Orsini. This fine monument, we are told, has been destroyed.

Tagliacozzo, which is also in the Abruzzi, lies ten miles west of Avezzano. It is only about half its size, but it is full of treasures, and it is approached through a magnificent gorge, of a wild and picturesque character. If (says "The Times") the havoc wrought by the earthquake is correctly stated, several well-known churches must have been destroyed. The finest is St. Francesco, which has a beautiful rose window in the façade. Here also there is a fine fourteenth-century palace, which belonged to the Colonna family. At the battle of Tagliacozzo in 1268 Charles I. of Anjou defeated Conradin of Hohenstaufen, Manfred's son, and thereby established the power of the Guelphs in Italy.

A telegram from Rome states that Scurcola Marsicana, which is the village near the site of the battlefield, has been destroyed by the earthquake. It is to be feared that the famous church of St. Pietro above the battlefield has likewise gone.

Arpino, Cicero's birthplace, lies on the railway line from Naples to Rome. The tower which we are told has been destroyed is probably not a monument to Cicero, but is more likely to be the large square tower of the ancient citadel. The wall of the town also has a series of mediæval round towers at intervals; and the famous polygonal walls on the Civita Vecchia are well known. They have been compared to the masonry at Mycenæ, and are built of blocks of pudding stone, but they are not as old as the Cyclopean walls, and are generally assigned to the fifth century B.C. Cicero's Letters abound in references to Arpinum, and probably the simple mountaineers who inhabit it to-day are not very different in character from their ancestors, whose homely virtues he described: in any case they are very proud of their famous townsman, and M.T.C., the initials of Marcus Tullius Cicero, is to this day their municipal device.

The records of such destruction as has been wrought at Rome will be read chiefly with a feeling of thankfulness that so little damage has been done. Rome is not only eternal, but peerless, and few can think of all tha might have perished without a catch in the breath. O the damage so far reported the most irreparable is tha to the column of Marcus Aurelius, in the centre of th Piazza Colonna, an illustration of which is given on thi page. The damaged bas-reliefs represent the conquest of the Marcomanni. The column was originall erected by the Senate in A.D. 176 in honour of Marcu Aurelius, nephew of the Emperor Antoninus Pius and was found on the Monte Citorio in 1709.

It had been hoped that, as commonly happens, th first reports of the earthquake had been muc exaggerated, but unhappily the later accounts sho that the loss of life and destruction of buildings ar even more serious than had been at first apprehende It is stated that in the Avezzano district 20,000 person have perished, and in the district of Sora 5,000. A Cappadocia and Castello Fiume almost all th buildings are completely ruined, and the same fat has overtaken Cese, Capelle de' Marsi, San Benedett Ortucchio, and Gioia de' Marsi. Scurcola Marsican Magliano de' Marsi, and Pescina are described as eac being half or three-parts destroyed; and the condu from the Lake of Fucino having been serious damaged, it is feared that the lake will refill to th overflowing and destruction of one of the most ferti regions of Italy. It is observed that several rei forced-concrete buildings have withstood the orde extremely well.

COLUMN OF MARCUS AURELIUS, ROME.

A SIXTEENTH-CENTURY GRILLE ESTORED TO WESTMINSTER ABBEY.

THERE has just been restored to its proper place in Westminster Abbey the wrought-iron grille, of sixteenth-century workmanship, which originally rrounded the tomb of Lady Margaret Beaufort fterwards Countess of Richmond), mother of Henry II., and grandmother of Henry VIII., after it had een missing for nearly 100 years.

The tomb of the Countess—which stands at the st end of the north aisle of Henry VII.'s chapel—is e of the most beautiful in the Abbey. It is the work the famous Florentine artist, Pietro Torrigiano, and s English assistants, and the effigy is generally con-dered to be a remarkable achievement of monu-ental sculpture, and of the hands, lean and wrinkled, t beautiful in shape and pose, it has been said that such pair of hands was ever elsewhere sculptured.

The grille, 9 ft. long and 4 ft. 11 in. wide, is in a markable state of preservation. At each angle and the centre of the long sides is a rectangular pillar ith applied Gothic moulding, the upper part twisted d surmounted by a finial on which devolves a flag, iginally painted. The sides are composed of verti-l bars of lozenge section, supporting a horizontal nd, with edges of cable moulding formerly orna-ented with small appliqués. From the upper edge se fleurs-de-lys alternated with pike-heads.

The story of the loss and reinstalment of the grille interesting. It was discarded, with other works of t, by Wyatt in his restoration of the Abbey, com-eted in 1822, and was sold for about £100. It mained in the family of the purchaser till quite cently, when it was bought by Messrs. Harding, of . James's Square. From them it was purchased by e National Art Collections Fund (the head of the firm ntributing generously to the purchase price) for storation to its original position. The identification beyond question, the traditional attribution being rikingly confirmed. The Countess, who was a great tron of learning, founded, among other institutions, . John's College, Cambridge. and the records of that llege contain the specifications, dated 1512, for the sign and construction of the grille. This specifica-on agrees in every particular with the grille, which is rther identified by the illustration of the tomb and e grille in Ackermann's "History of the Abbey hurch of St. Peter's, Westminster," published in 1812.

The Dean and Chapter, satisfied by the report of rofessor Lethaby, Surveyor to the Abbey, as to its entity, welcomed the offer of the National Art Col-ctions Fund, and the grille is now open to public spection, in practically the same condition as when was first erected in the sixteenth century.—From The Times."

RESTORING THE ROOF OF WESTMINSTER HALL.

THE work of restoring and strengthening the roof of Westminster Hall by means principally of steel trusses will be begun very shortly. For the st six months the Office of Works has been consider-g the problem of building a scaffold to carry the usses. It will be remembered that the thorough and stematic examination of the roof from a pole scaffold 1913 revealed a serious condition of decay and grave ructural instability, due mainly to the ravages of the rva of a beetle—*Xestobium tessellatum*. The recom-endation of Mr. Frank Baines, M.V.O., one of the rincipal architects to the Office of Works, that the of should be reinforced rather than renewed, was cepted by Lord Beauchamp, the First Commissioner Works, after having been submitted by him to the Ancient Monuments Board. Mr. Baines's scheme is the construction of a complete steel truss for the roof, so that the existing timbers may be preserved as they stand, or patched and repaired with modern oak where they are decayed. The beauty of the ancient roof will be preserved unimpaired by the method of treatment proposed, the risk of collapse will be removed, and the decay of old timbers will, it is hoped, be arrested.

The stone slabs of the floor of the Hall are being taken up, and a timber rail base laid down for carrying the tremendous weight of the steel scaffolding, which will amount to 180 tons, apart from the superimposed load of the trusses. At the south end the steel stage has been raised almost to the full height of the hall, and the great apparatus for supporting the enormous trusses is in position. Another section of the work now in progress is the erection of a false temporary roof over the existing slate roof outside the Hall, as all the slates will have to be stripped off.

THE DAMAGE DONE TO WHITBY ABBEY.

MR. JOHN BILSON, F.R.I.B.A., F.S.A., has prepared the following report on the damage to Whitby Abbey caused by the bombardment of December 16:—

The west end of the nave has suffered most. This is the latest part of the church, dating from the early years of the fourteenth century, and its condition before the bombardment was as follows: The lower part of the west wall of the nave itself was standing up to the level of the sill of the great west window; the west doorway was complete, except its central column and part of its tympanum, and on each side of the doorway, on the inner side of the wall was a wall-arcade of similar character to those of the nave aisles of York Minster and the west end of Howden Church. The western respond pier of the north arcade of the nave remained its full height, with its capitals and the springing of the arcade arch, and behind this was a newel-stair. The north jamb of the great west window remained its full height up to the springing, attached to the wall and buttress containing the stair. The west wall of the north aisle was fairly complete to its full height, except that the window had lost part of its tracery, which, like the great west window of the nave, was an insertion of the fifteenth century.

The arch of the west doorway and the walling above it have been destroyed. The wall arcades on each side of the doorway have collapsed, leaving the rubble core of the wall—except a small fragment at each end, north and south. The north jamb of the great west window has fallen, with the whole of the eastern half of the stair, down to below the capitals of the respond pier. The south half of the inner arch of the west window of the north aisle has fallen, and what remained of its tracery has been dislocated. Much of the north face of the buttress in line with the west wall of the aisle has been stripped off.

Elsewhere the church has suffered some lesser injuries. The gable-end of the north transept is flanked by turrets rising from great buttresses; on the eastern of these the upper arcade has lost one of its arches and small gables, and one of the gables of the lower arcade has lost its apex stone; the wall around the eastern angle of the buttress at the latter level shows signs of having been struck and some surface damage, and the blow seems to have brought down two arch stones from the north side of the bay of the east clear-storey of the transept next the crossing. One of the main piers of the north arcade of the choir, the fourth from the east end, has been struck, and the capitals of two of its shafts on its north-east side have been shattered. Otherwise the beautiful choir has fortunately almost entirely escaped injury.

SOCIETY OF ARCHITECTS' ANNUAL REPORT.

THE annual report of the Council was presented at last week's meeting of the Society of Architects. The following is a summary of the main points:

Registration: The outbreak of the war has put a stop for the present to the promotion of the Institute Charter in the Privy Council and of the Society's Bill in Parliament. In regard to the latter, although the Parliamentary procedure has not been gone on with, every opportunity is being taken by the Society to further prepare the ground for future propaganda, should it be necessary to resume the promotion of the Bill in Parliament after the war. The hope has been expressed, and it is one in which the Council concurs, that as the war has had the good effect of drawing together the members of the architectural profession without reference to architectural politics, this happy state may continue, and that when Peace is declared it may relate not to one kind of war only, and that some method may by then have been arrived at of settling any little differences in regard to the means to be adopted in attaining the end which both the Society and the Institute have in view.

The New Zealand Institute of Architects was successful last July in obtaining a Registration Act, having accomplished in one year what the profession at home has been seeking for thirty years. It is, however, only fair to point out that the New Zealand Bill was practically a Government measure, and although the promoters had to overcome a certain amount of opposition from interested parties, they did not have to face dissension from a section of the profession, nor were they hampered by questions of architectural politics or parliamentary procedure.

Progress has also been made in some parts of Canada which have followed the lead set by Alberta and other Provinces of that Dominion. In Canada all the provincial architectural bodies are federated with the Royal Architectural Institute of Canadian Architects, which greatly facilitates the organisation, administration and control of professional matters.

The Royal Victorian Institute of Architects, Melbourne, is proceeding with a Registration Bill, and a similar measure is to be introduced in New South Wales, and also in Tasmania.

Competitions: The Council has taken up every case of an unsatisfactory architectural competition brought to its notice, and where it has failed to secure amendments, the competition has been barred and the members warned not to take part therein. On three occasions during the year the warning was disregarded and the architects concerned are no longer members of the Society.

The Society has acted in conjunction with the R.I.B.A. in this matter, and as the promoters of competitions are realising that responsible architects, particularly those who are members of architectural bodies, will not take part where the conditions are unsatisfactory, the profession itself is beginning to benefit by the increased recognition of its status by public bodies and others.

Model Form of Contract: The Council is now able to say that a Model Form of Conditions of Contract has been drafted for the Society by Mr. W. Valentine Ball, barrister-at-law, based on suggestions made after long and careful inquiry. The Council has also drafted, under legal guidance, a number of forms for party wall and other notices under the London Building Act. It is hoped that these documents, more particularly the form of Building Contract, may be found of practical service.

War Clause in Contracts: The Institute of Builders approached the Council regarding a proviso which the Institute had authorised its members to endorse on all future tenders for building undertakings, with a view of providing for (*a*) the adjustment of any account for extras due to an increase in the cost of labour or materials owing to the War, and (*b*) a reasonable extension of time for any delay in obtaining labour or material owing to the same cause. The question was also raised as to the liability or otherwise attaching to contracts for any damage caused by the King's enemies to works in progress. The suggestion was that a provisional sum should be reserved to cover the cost of insurance. The Council saw no objection to the principle of insurance against war risks, but it raised some objections to the form of the proviso, and proposed a revised clause which the Institute of Builders has circulated to its members.

The Council has received a vast number of inquiries from members relating to the difficulty of obtaining building materials owing to the war, and is in negotiation with the Local Government Board and other bodies which are conducting inquiries into the matter.

Attendances on Sub-Contractors: The Council was approached by the Surveyors' Institution, who drew attention to the objection against accurate estimating imposed by the practice of leaving in Bills of Quantities, the cutting away and attendance on sub-contractors to be priced in a lump sum by the principal contractor. As the ability of the Surveyors' Institution to deal with the subject of complaint depended largely upon the information placed at its disposal by architects, the co-operation of the Society of Architects was invited. The matter was fully considered by the Council, which found itself in sympathy with the proposals of the Surveyors' Institution in principle, but suggested modifications in the method of carrying them into effect. The matter was still under negotiation at the end of the session.

Public Appointments: The Council has been able successfully to maintain the principle that candidature for important public architectural appointments should not be restricted to members of any one architectural body, but should be open to any bona-fide member of the profession. The case in point was that of the position of Superintending Architect for Nigeria, when the matter was taken up with the Crown Agents for the Colonies.

The Council has also taken up with public bodies the question of the employment of practising architects rather than officials in connection with architectural works of a public character, and has approached a government department relative to officials undertaking outside architectural work in their spare time to the detriment of private practitioners.

First London Atelier of Architecture: Early in the session the Beaux-Arts Committee voluntarily released the Society from its financial guarantee, with due acknowledgment of the obligations to the Society which the Committee was under, in enabling it to carry on its work and become firmly established. The Committee asked that the privileges of using the Society's premises for its meetings and the clerical staff for its work might be renewed The Council gladly renewed these facilities, and in addition made a second donation of £100 from the Society's funds in furtherance of the Committee's work.

The Atelier has now become firmly established, and is recognised, even by those who at one time opposed the scheme to be carrying on the traditions of the Beaux-Arts method of architectural training on the right lines. The Council i satisfied that its action in bringing into existence the Beaux-Arts Committee and materially assisting in this work is one o the best things the Society has done, and is justified by results. There is little t show for it from a material point of view but the influence which the Atelier i having on the future of architecture in Britain is already being felt, and will undoubtedly be to the permanent good of th profession and the community.

The growth and development of th Atelier has been such that it was decided by the Beaux-Arts Committee to establish a second Atelier in London, and premise had been secured when the outbreak o war put a stop for the present to an further progress in this direction. Th sous-patron, M. Chaures, was recalled t France for military duty, and all eligibl members of the Atelier offered themselve for enlistment in the forces of the Crown and those who were fit were accepted.

The Atelier is in the meantime carrying on its work successfully from the educational point of view, but under som material difficulties. Architects who ar interested in the movement can becom members of the Atelier on payment of subscription of £1 1s., and so greatl assist the Committee in tiding over a diff cult period. Many architects have take this method of showing their approval the principle upon which the Atelier conducted.

Clerks of Works: At the request the Incorporated Clerks of Works Associ tion of Great Britain, a Committee of th Council received a deputation from th body with a view to ventilating som questions affecting the interests of clerk of works, more particularly in regard the rates of wages offered to them b public bodies. It was thought that b enlisting the sympathy of architects, wh were able to appreciate the points raised something might be done in getting publ bodies to see the advantage of offering suc a wage as would secure the best availab services. The principle involved appli not only to clerks of works but to arch tects and members of other profession and the Council was able to assure th deputation that they were in accord wi them on this point. Another questio raised by the deputation was as to who wa liable in the event of injury or fatality the clerk of works in the discharge of h duty. The Council was advised that a injured person can claim for injury und Common Law, the Employers' Liabili Act, or the Workmen's Compensation Ac and that therefore building owners shou insure against this risk. The contract service should be between the buildin owner and the clerk of works, and th architect in his own interests should mak sure that he does not incur any liability the event of the building owner becomin insolvent, or from any other cause.

Architects and the War: The Pr fessional Employment Committee is d 'eloping a scheme of civic surveys under he guidance of Mr. H. V. Lanchester, y which means it is hoped to offer mployment not only to architects and sur- eyors, but to members of many other llied professions who suffer by the war. n the meantime applications have been oming in from all parts of the country rom architects who desire employment, nd the Committee have been able to em- loy a number of them on useful work.

As far as can be ascertained, every mem- er of the Society who is eligible, and in position to do so, has offered himself for nlistment in His Majesty's Forces, and hose who are fit have been accepted.

At least one member is a prisoner of war, nother has been mentioned in despatches, nd it is certain that all who are on active ervice are taking their full share of the urden. Recognising this, the Council as in every case where such request has een made to it, relieved the member on ctive service from the payment of his sub- cription during the war.

Members who from force of circum- ances are compelled to remain at home re doing other useful service by serving s special constables and as members of olunteer training corps, or giving up a reat deal of time to recruiting or to relief ork of many kinds.

NEW PRESIDENT: Mr. E. C. P. Monson, .R.I.B.A., F.S.I., is the new President, succession to Mr. Percy B. Tubbs, .R.I.B.A.

LEGAL.

rchitect's Claim in Respect of Plans not Carried Out.

Silver v. Smallwood.

nuary 8. Birmingham County Court. Before Judge Amphlett and Jury.

This was an action brought by Council- r Thomas Silver, architect, of Hands- orth, against Alfred Smallwood, Hands- orth, to recover £100, fees for work done. Mr. E. W. Cave appeared for the plain- f, and Mr. H. Maddocks for the de- ndant.

Plaintiff's case was that he was in- ucted to prepare plans for a picture use and bank which defendant was pro- sing to erect in Holyhead Road, Hands- orth, the terms of remuneration to be er cent. on the cost of the building. The e was approved by the licensing justices bject to slight amendments in the plans, d later these were approved and signed the chairman. Plaintiff had worked out e approximate cost of the buildings at ,000. There was a proposal that part the premises should be rented by Lloyds nk, but this fell through, and defendant shed to break off the negotiations with intiff under a clause in the original reement. Accordingly plaintiff sent in account, charging 2½ per cent. on the imated cost and £25 for other services ndered. He had since reduced the ount by £50 in order to bring it within jurisdiction of the County Court.

Defendant said that in 1913 he was in ich with Lloyds Bank in reference to erection of a bank on a site belonging him at the corner of Holyhead Road intiff approached him on the subject, d a suggestion was made that a picture use should be incorporated in the build- scheme. Plaintiff agreed to get out ns, and terms were arranged at 5 per it. on the cost of the buildings if the rk were proceeded with, and £10 10s. for plans if the work were not proceeded h. Defendant said it was purely a speculation with him, and asked how much he would be responsible for if the plans prepared were not proceeded with, and plaintiff said, "In that case ten guineas is the whole sum you will be responsible for." Subsequently it was decided not to proceed with the scheme, and until he received a letter from plaintiff, on July 20, it had never been intimated that he owed plaintiff more than ten guineas. No suggestion had ever been made that he would have to pay 2½ per cent. for the completed plans, and that the £10 10s. related only to sketch plans. Witness never gave instructions for specifications to be prepared. Plans prepared subsequently by another architect were approved by the bank, and these were being proceeded with.

After a lengthy hearing the jury returned a verdict for the plaintiff for £60. Judgment was entered accordingly.

Architect's Claim in Respect of a House.

Maxwell v. Frankland.

January 10. Blackburn County Court. Before Judge Sturges.

In this action the plaintiff, Lawrence H. Maxwell, architect and surveyor, claimed £36 12s. from George Frankland, cycle factor, Blackburn.

Mr. R. Ferguson, for the plaintiff, said that in September, 1912, defendant instructed plaintiff to prepare plans and sketches for a house at Grindleton. This was done accordingly, but for some time the matter was allowed to drop. Defendant again saw the plaintiff, and a second scheme, estimated to cost £1,200, was commenced. (The original intention was to build a house costing £800.) Defendant later called in the assistance of a specialist in the laying-out of grounds, and the whole scheme was estimated to cost between £3,000 and £3,500. Plaintiff was subsequently instructed to prepare quantities, but before he could proceed defendant decided to allow the matter to drop. When plaintiff sent in his account for £36 12s., defendant replied that he did not admit any liability. The terms of plaintiff's engagement were the payment of 6 per cent. on the cost of the house, such commission to include all charges. In the event of the house not being proceeded with defendant contended that no charge was to be made, and the question of out-of-pocket expenses had to be left to him. He stated that plaintiff had previously done work for him on those terms, and although he thought £5 would be a liberal allowance, he had decided to allow him £10, and enclosed a cheque for that amount. Plaintiff replied that he knew of no such arrangement as that suggested with regard to out-of-pocket expenses being paid only in case the scheme was dropped, and he returned the £10.

His Honour: Why did he return the cheque? £10 is £10. He could have accepted it on account. I always tell people never to send money back.

Plaintiff, in evidence, said that when defendant asked him what his position would be in case the house were not proceeded with, he replied that he could not tell him, because everything depended on how the scheme was carried. When the scheme had gone to the point of almost commencing building operations, he did not think defendant could expect him to do that simply for out-of-pocket expenses.

Mr. H. S. Haworth, for the defendant, said there was a specific contract as to what should be paid in case the scheme fell through. Plaintiff had admitted that a discussion had taken place in which the possibility of the scheme falling through was mentioned, and he (Mr. Haworth) contended it was specifically mentioned that if the building of the house were not proceeded with plaintiff should be paid his reasonable out-of-pocket expenses, the amount to be left to the defendant.

Defendant gave evidence. Plaintiff, he said, refused to submit amended plans to the landscape gardener he had called in. He alleged that plaintiff had thrown him over, and was not entitled to anything, but being Christmas time he decided to lend him £10.

His Honour gave a verdict for the plaintiff for £33 12s.

SOCIETIES AND INSTITUTIONS.

Ireland's Ancient Buildings.

At the meeting of the Council of the Royal Institute of the Architects of Ireland held on January 11, the Arts Committee was instructed to deal with the formation of a record of ancient buildings of architectural interest throughout Ireland.

Architecture and Efficiency.

Mr. W. S. Purchon, A.R.I.B.A., delivered a lecture on "Architecture and Efficiency" before the Birmingham Architectural Association on January 8. In studying the works of architecture of the past, he said, one ought not to look so much at the details and the trivialities as at the fact that the artists were striving to make the most efficient buildings they possibly could. It was not enough to take details from old buildings for modern works, but it ought to be realised that great structures of the past were really efficient solutions of special problems of the time and place, into which entered the climate, the environment, and the needs of the time.

Carpenters' Company Lectures.

The Worshipful Company of Carpenters have arranged the following lectures on the arts connected with building:

January 20.—Mr. C. Delisle Burns, M.A., on "Building in Mediæval Times by the Guilds."

January 27.—Mr. Aymer Vallance, M.A., F.S.A., on "Old Bridges."

February 3.—Mr. W. H. Ansell, A.R.I.B.A., on "Flemish Civic Buildings."

February 10.—Mr. H. J. L. J. Massé, M.A., on "William Morris as a Craftsman."

February 17.—Mr. Charles Aitken (Keeper of the Tate Gallery) on "Animal Forms in Art."

February 24.—Mr. Francis Bond, M.A., on "A Comparative View of French and English Cathedrals."

March 3.—Mr. Walter H. Godfrey on "Chelsea Antiquities."

March 10.—Mr. H. M. Fletcher, M.A., on "Brick Buildings."

March 17.—Mr. Banister F. Fletcher, F.R.I.B.A., on "Reims Cathedral."

March 24.—Professor Selwyn Image, M.A., on "The Life, Work, and Influence of William Blake."

The lectures will be illustrated by lantern slides, and admission is free by tickets, which can be obtained on application to the Clerk, Mr. J. Hutton Freeman, at the Carpenters' Hall, London Wall, E.C.

NEWS ITEMS.

Change of Name.

Mr. R. Weir Schultz, architect, of Gray's Inn Square, has added the surname of "Weir," and will henceforth be known as "Robert Weir Schultz Weir."

Mr. Edward Evans.

Mr. Edward Evans, builder of Chislehurst and Peckham, who died on October 12, left estate which has been proved at £14,589 gross.

"Pudloed" Stonework.

The architects for the staff Institute belonging to Messrs. Swann and Hunter, of Wallsend-on-Tyne, are having the artificial stonework for this building treated with "Pudlo." Apart from the waterproofing properties of this powder, it is reported to give artificial stone a bright and clean appearance, with sharp clear-cut arrises.

London County and Westminster Bank

The directors of the London County and Westminster Bank, Ltd., after making provision for bad and doubtful debts, and applying £336,600 in writing down investments, have declared a dividend of $10\frac{5}{8}$ per cent. for the past half-year (less income tax), making a total distribution of $21\frac{1}{4}$ per cent. for the year 1914, leaving a balance of £160,112 to be carried forward.

Memorial to Sir J. G Kennedy.

A memorial at Westfield, Sussex, to the late Sir John Gordon Kennedy, K.C.M.G., formerly Envoy Extraordinary and Minister Plenipotentiary to the King of Rumania, includes an inscription commemorating the late Captain Archibald Edward Kennedy, of the Argyll and Sutherland Highlanders, who was killed in action at Le Cateau. The memorial takes the form of a Celtic cross, carved in red Scottish granite. Messrs. G. Maile and Son, of Euston Road, London, designed and executed the memorial.

New Buildings at Barnsley.

In his annual report on building work carried out at Barnsley during the past year, the Borough Surveyor (Mr. J. H. Taylor, M.I.C.E.) states that the number of cottages erected during the year was fewer than during any one of the last fifteen years. The important buildings completed during 1914 include the Rescue Station for the Mine Owners' Association, the new Union of London and Smiths Bank, Mr. Gillott's new foundries in Mona Fields, new public baths, and Messrs. Marsden and Son's paper works, Old Mill. New premises for the Sheffield Banking Company are being erected on Market Hill.

The Rebuilding of Belgium.

The International Garden Cities and Town Planning Association have arranged a two days' conference at the Guildhall on February 15 and 16 to discuss the possibility of rebuilding Belgium on garden city lines. The Lord Mayor will welcome the guests, and an opening address will be given by Mr. Herbert Samuel, President of the Local Government Board. Belgium will be officially represented by M. Helleputte, Minister of Agriculture and Public Works, and others, and visits will be arranged to places of architectural and town planning interest in various parts of the country.

Water-Filtration Plants.

Messrs. Mather and Platt, Ltd., electrical, gas, textile, hydraulic, and fire engineers, of Park Works, Manchester, have had, everything considered, a very satisfactory year's business in all their branches. Among the installations supplied by them is that for filtering water for the general use of workpeople at the Alliance Jute Mills, near Calcutta. This installation has caused widespread interest in water-works circles in India on account of the exceptionally good results obtained when filtering River Hooghly water, even in its worst state. The firm are now engaged on a most important installation for the Oldham Corporation Waterworks, comprising eighteen filters to deal with nearly $3\frac{1}{2}$ million gallons of water per day. When completed this will be one of the most up-to-date installations of mechanical filters in the country.

British Standard Rolled Sections for Structural Purposes.

The lists of British Standard Rolled Sections for Structural Purposes have just been revised. Copies can be obtained through any bookseller or direct from the offices of the Engineering Standards Committee, 28, Victoria Street, Westminster, price 2s. net. Four unequal angles, three bulb angles, and two Zed bars have been added, all of which are in demand primarily for shipbuilding purposes. It has not been found practicable to delete more than one standard section, as those sizes which are not now required for shipbuilding are considered essential for bridge and underframe work. Certain reductions have also been made in the minimum web thicknesses of the bulb angles and channels, with a view of producing more economical forms of sections.

COMPETITIONS.

Macclesfield Housing Scheme.

Members of the Society of Architects are requested not to take part in this competition without first ascertaining that the conditions have been approved by the Society, which is in negotiation with the promoters with a view to securing certain amendments.

LIST OF COMPETITIONS OPEN.

January 23. — Workmen's Houses, Doncaster.—The Town Council of Doncaster invite designs for the lay-out of a site of about twenty acres at Carr House and the erection of 102 workmen's houses on four acres thereof on garden city lines. Particulars from R. A. H. Tovey, Town Clerk, Doncaster.

February 8.—Workmen's Dwellings, City of Liverpool.—The Corporation of Liverpool invite designs for workmen's dwellings to accommodate about 500 persons, to be erected on the Rathbone Street area. Premiums of £100, £50, and £25 are offered, and the Council have appointed Mr. Henry Hartley, F.R.I.B.A., as assessor. Particulars (£1 1s., returnable) from Mr. Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool.

March 31.—Street Planning, Bradford.—The Corporation of Bradford invite competitive designs for the replanning of streets in the central area of the city. Mr. Reginald Blomfield, R.A., will act as assessor. Particulars (£1 1s., returnable) from Frederick Stevens, Town Clerk, Town Hall, Bradford.

April 30.—Grammar School, Leicester. —The Corporation invite designs for the new Wyggeston Grammar School for Boys to be erected on a site next Regent Road. Competition limited to architects practising in Leicester. Premiums, £100, £70, and £50. Assessor, Mr. George H. Widdows, F.R.I.B.A.

PROJECTED NEW WORKS

Institution, Durham.

The Durham Education Authority pro pose to build an institution at Witton Gil bert for defective children at an estimate cost of £20,000.

Houses, Dartford.

An enquiry has been held into the appl cation by the Dartford Urban Council fo power to borrow £8,930 for the purchas of land for the erection of working-clas dwellings.

Houses, Aldershot.

Aldershot District Council have decide as a preliminary experiment in housing, t erect four workmen's dwellings at an est mated cost of £800. The surveyor is t prepare plans.

Workmen's Dwellings, Criccieth.

The Local Government Board hav sanctioned the application of the Criccie Town Council to borrow the sum of £3,2 for the purpose of erecting seventeen wor men's dwellings.

Cottage Baths, Hull.

A sub-committee of the Baths Con mittee of the Hull Corporation have recon mended the erection of a suite of cotta baths in the Newington district. T Water and Gas Committee will be ask to allow a portion of their land in Albe Avenue to be utilised for this purpose.

Housing, Rhos.

At a meeting of the Wrexham Rur District Council a letter was read from t Local Government Board sanctioning t loan of £11,000 for the erection of hous for the working classes at Rhos.

Temporary Buildings, Sussex.

So many troops are encamped in Suss that steps are to be taken to erect buildin which can be used for religious purpos The diocese has taken up the matter wi the approval of the Bishop, who announc that he has received £200 towards t £5,000 required.

Baths, Sowerby Bridge.

The Sowerby Bridge Council, Yorkshi have approved the plan, estimate, and port of their surveyor with regard to t erection of new baths on the existing si The surveyor has been instructed to get a detailed plan, with a view to making plication to the Local Government Bo for sanction to borrow the money.

Housing Scheme, Waterford.

At the monthly meeting of the Wat ford (Ireland) Corporation a letter w read from the Local Government Bo intimating that the Board has reco mended to the Commissioners of Pu Works the loan of £23,138 for the purp of erecting working-class dwellings un the Housing of the Working Classes A

Houses, Dodworth, Yorks.

The Local Government Board are pr ing the Dodworth Urban Council to bu workmen's cottages. About a hund houses are badly needed. If the lo authority do not take the matter up Local Government Board will proba advise the West Riding County Counci carry out the work.

Housing, Southampton.

The Housing Committee of the Sou ampton Corporation recommend, in c nection with the development of Hampton Park site (acquired by the C poration for housing purposes) t alternative tenders for the erection of ei twenty-four or fifty houses at a rental exceeding 7s. 3d. a week inclusive be vited.

COMING EVENTS.

Wednesday, January 20.

nters' Company.—Mr. C. Delisle Burns on "Building in
ediæval Times by the Guilds," Carpenters' Hall, London
all, 7.45 p.m.

Thursday, January 21.

te Institute.—Mr. Ewart S. Andrews, B.Sc., on "Some
odern Methods of Arch Calculation," at 7.30 p.m.
sity College.—M. Camille Poupeye on "Belgian Art,"
5.30 p.m.

Friday, January 22.

gham Architectural Association.—Mr. S. Bylander on
Reinforced Concrete Construction."
tion of Mechanical Engineers.—Mr. John Dewrance,
I.M.E., on "Standardisation of Pipe Flanges and
anged Fittings," at 8 p.m.

Wednesday, January 27.

al Federation of Building Trades Employers Annual
neral Meeting, Throne Room, Holborn Restaurant,
.30 a.m.

Friday, January 29.

er and Leicestershire Society of Architects.—Mr. C. E.
ll on "The Renaissance of Cambridge."
w Royal Technical College Architectural Craftsmen's
ciety.—Mr. James Telfer on "Lighting."

AL MEETING OF THE NATIONAL FEDERATION.

annual general meeting of this Federation will be held
Throne Room, Holborn Restaurant, London, W.C., on
sday next, January 27, at 10.30 a.m., when the annual
will be presented, and among the subjects to be dealt
ill be recommendations from the council meeting held
same place on the preceding day with respect to the
ng matters: National Board of Conciliation; priced
les with tenders; contract conditions with local
ities; National Insurance Act; forfeiture of goods by
der; municipal trading; present position of contract
b-contract; and timber supplies. Results of elections
rations for the new executive council will be announced;
tions to the National Board of Conciliation and to the
.P. Joint Committee of Appeal to take office in March
ay next, will be received; and the new president and
will be elected. A report of the proceedings will appear
journal in due course.

THE INCREASED COST OF TIMBER.

ading timber merchant writes to the "Times" to explain
e price of timber used for huts, etc., is so abnormally
He shows that a very considerable quantity of timber has
n the quays two or three months, and declares his belief
ost of it will be there another month or two. He further
that many of the vessels that brought this timber were
t Gravesend for some time, incurring demurrage. The
is, he says, that whereas one could, a fortnight ago,
Norway to Hull (usually the same freight as London) at
42s. 6d., the same steamers require 55s. to London. At
t the Hull freights are at least 10s. less than London
to the delay or anticipated delay in discharging the cargo.
chant therefore has to pay this extra price to get his
s, thus increasing the cost.

OBITUARY.

Mr. Walter Busbridge.

Walter Busbridge, of Plumstead, Kent, who died on
y 7, at the age of seventy-four, had done important work
ioneer of technical education in the building trades. At
e of fifteen he became an apprentice carpenter in the car-
department at the Royal Arsenal, Woolwich, where, in
r, 1858, he entered the draughtsmen's office. When, in
Mr. T. Jones, one of the earliest Science and Art Depart-
teachers, started classes in practical geometry and
ne construction and drawing at the Arsenal, Walter
dge became one of his most diligent and successful
ts, and, qualifying for a teacher's certificate, he, in con-
on with Mr. Jones, established at Woolwich the first class
lding construction opened in the London district. Sub-
tly he established a group known as the Metropolitan
ng Classes, in which he trained thousands of students,
of whom obtained responsible positions in various parts
world. Mr. Busbridge was a prominent Freemason.

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THE question of the cost of Advertising is governed entirely by the circulation of a publication. The prices for small Advertisements enumerated below are framed upon the lowest possible basis in order to allow the use of the columns of the Journal for "Wants," &c., at a figure well within the reach of everyone.

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ADVERTISER with spare time is open to prepare estimates, accounts, quantities, or keep builders' books, on moderate terms by arrangement; very quick, careful worker, twenty-four years' experience in prices and routine.—Box 8994.

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ARCHITECT, disengaged owing to war; Lict. R.I.B.A.; 20 years' first-class London experience hospital, sanatoria, and housing work.—Write Architect, 16, Eccleston Street East, South Belgravia, S.W. 9112

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BUILDER'S Assistant (28) wants permanency; practical; first-class draughtsman; quantities, estimating, supervision; thirteen years with large London contractors; salary about 50s. H. Richardson, 18, Campbell Road, Bow, E. 9129.

GENERAL Foreman; just finished large West-End job; highest references; good timekeeper and manager; thoroughly experienced in all branches; carpenter and joiner.—B., 40, Raleigh Road, Hornsey, N.

PAINTER, Working Foreman, or otherwise; practical paperhanger and colourman; or piecework (paperhanging); well up in City or West-End work; references; age 43.—Till, 17, Oakley Road, Southgate Road, N.

SANITARY and Heating Engineer seeks re-engagement as estimator and supervisor; twenty years' experience West-End and abroad; age 38; abstainer; excellent references. —H., 355, Sandycombe Road, Kew Gardens, W.

SHOP Foreman.—Practical Carpenter and Joiner seeks re-engagement as above. Well up in all kinds of joinery work, both in hard and soft woods, stairs, shop, and office fittings, alterations; quick and accurate setter-out, preparing working details; used to all kinds of machinery; good references; six years with last firm.—A.B., 4, Landcroft Road, East Dulwich, S.E.

THE Association of Builders' Foremen and Clerks of Works, 56, Old Bailey, E.C.—Experienced Foremen and Clerks of Works can be obtained by applying to the Secretary, Mr. J. W. Sawyer, 214, Clapham Road, S.W. Competent foremen and clerks of works are invited to join this Association. 8289

TO Constructional Engineers and Architects (London).—Capable Assistant (married) requires part time employment; work either at home or in office.—Box 9126.

Competitions Open.

9d. per line.

CITY OF BRADFORD.

COMPETITION.

The Bradford Corporation invite COMPETITIVE DESIGNS for the RE-PLANNING of STREETS in the Central Area of the City of Bradford. Mr. Reginald Blomfield, R.A., will act as Assessor. First prize £500, second prize £300, and third prize £200.

Particulars may be obtained on application to the undersigned, accompanied by a deposit of £1 1s. 0d., but in case the particulars and plan are returned within ten days after receipt thereof then the deposit of £1 1s. 0d. will be returned

FREDERICK STEVENS, Town Clerk.
Town Hall, Bradford,
19th November, 1914. 9077

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ARCHITECT'S Assistant, fully qualified, wanted immediately in Birmingham, with knowledge of abstracting and billing quantities preferred; state experience and salary required. —Box 9118.

BUILDER'S Clerk.—Temporary assistance is required of a reliable bookkeeper and estimator (must be well up in estimating for alterations and repairs, taking off quantities, also outside management) by a small but growing concern, with a possible view to permanency to an energetic man.—Apply, stating age, reference, and salary required, to King, Builder, Lime and Cement Merchant, Clacton-on-Sea.

BUILDER'S Clerk wanted; man thoroughly used to the routine work of a builder's office.—Apply, with full particulars, to Patrick Green, Ingatestone, Essex.

DRAUGHTSMAN wanted for a few hours in evenings each week; must be able to design small residences; preferably living near Wood Green.—F. S. I., 164, Palmerston Road, Bowes Park.

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Miscellaneous.

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—Clarkson's, 338, High Holborn, London, W.C. (Opposite Gray's Inn Road).

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Miscellaneous—*continued.*

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A copy of the specification and form tender may be obtained from the Boro Surveyor, at the Town Hall, Old Street, upon the deposit of £10, which sum will returned upon the receipt of a bona-tender, after same has received the consid tion of the Council.

The accepted tenderer will be required execute a contract for the due performa of the work.

Specified and Trade Union rates of pay hours of labour must be observed through

Sealed tenders upon the official form, dorsed "Tender for Decorative Works, Sh ditch Town Hall," must be delivered to Borough Surveyor's Office by noon on M DAY, January 25, 1915.

The lowest or any tender will not necessa be accepted.

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J. A. D. MILNE,
Town Cler
Town Hall,
Old Street, E.C.
January, 1915.

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pletion of contract, Messrs.
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THE
ARCHITECTS' & BUILDERS'
JOURNAL.

Wednesday, January 27, 1915. Volume XLI. No. 1047.

No. 120.

(*From Piranesi.*)

c

THE ARCHITECTS' & BUILDERS' JOURNAL.

JANUARY 27, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1047.

EDITORIAL.

An interesting article on "Modern Contract Management," contributed to the present issue by a practical man, reviews some of the changes that within recent years have modified the conduct of building operations. Although our contributor takes, on the whole, a somewhat superficial survey of the situation, his observations have been made "on the spot," and his comments upon what he has seen are not without value as an intelligent expression of views that are probably current among what may be called the non-commissioned officers of the building army.

* * *

First comes a mild protest against an assumed degradation of the builder's foreman. Large contractors now employ an outside visiting manager or walking foreman, having under his general superintendence several contracts, and depriving the foreman on the job of much of the authority and responsibility he formerly enjoyed. It is insinuated that not only is the reduced status and lessened value of the job foreman duly assessed in the wages list, but it is probably reflected in the character of the work in which, it is inferred, his interest has deteriorated morally as well as substantially. There is, then, on this showing, some danger of the old intensive influence upon details being relaxed. For our part, we think better of the builder's foreman than to suppose him so easily capable of demoralisation. Besides, as our contributor remarks, it is from the ranks of job foremen that the peripatetic foremen are selected, and the hope of promotion would surely keep the job foreman up to the mark. Our experience of the job foreman is that he is usually a man who "knows his job" and delights in doing it to the best of his ability, which in these days of widespread facilities for technical education is very considerable. As to the travelling foreman, it is quite obvious that his opportunities for putting into practice the scientific maxim, "Examine and compare," should certainly make for progress and efficiency.

* * * *

A more important point to which our contributor draws attention is that of the ever-growing practice of sub-letting, which certainly tends to restrict the job-foreman's outlook, and, what is much worse, too often causes an untoward clashing of interests. But it is hardly fair to attribute this practice to the general contractor, with whom, in point of fact, it is a chronic grievance. But the modern tendency towards specialisation is too strong for him. For many reasons he would very gladly have kept all the work in his own hands; but the specialist carries too many guns for him, and has a mastery over mysteries and complexities to which the building contractor could not be expected to attain. Still, there should be some remedy for the conflict of interests which sub-letting has set up, and it is not to be supposed that this matter will escape attention in the new forms of contract that are now unde consideration by the R.I.B.A., the Society of Arch tects, and the employing builders' organisations.

* * * *

That rather mysterious and obscure building "th King's Jewel House," at Westminster, having bee exposed to view by the demolitions in Old Palac Yard, many worthy citizens, previously unaware of i existence, are inquiring into its history. They will nc get much satisfactory information about it, very litt being available. What has suddenly assumed prom nence is a square tower standing to the south of th Abbey Chapter-house. It is supposed to have bee built in the stormy days of King Richard the Secon on a site bought from the monastery by Edward II Those being the days of rebellions and popular tumul —one remembers the schoolroom thrill of the sixteer year-old Monarch's intrepid address to the infuriate populace in Smithfield, when Wat Tyler was slai "What is the meaning of this disorder, my goc people? Are ye angry that ye have lost your leader I am your king: I will be your leader!"—Richar might well require a place of safety for his jewels; an the square tower at Westminster may very plausib be accredited as representing the fourteenth-centur idea of strong-room construction.

* * * *

It is sturdy enough in appearance; and the solidit of its construction, no less than its comparativel secluded position, suggested, in 1869, its use by th Standards Department of the Board of Trade. Whe the royal jewels and regalia were removed the tow was used as a sort of Record Office, or place of storag for Acts of Parliament—a dismal fate for a dece building. It is oblong in plan, with a square additi on the south-east, and the lower floor is vaulted in tw bays, with bosses at the intersection of the ribs showi vigorous carving—human heads, dragons and birds, well as foliage—features that seem to anticipate th Early Renaissance. Of course, the fine old timber ro is said to be of chestnut, but is more likely to be oa these two timbers being hard to discriminate, and th chestnut having acquired, since Washington's day, legendary affinity that creates instinctive distrust whe ever a "venerable chestnut roof" is mentioned. C examination these alleged chestnut roofs usually tu out to be oak, and are all the better for that, except the eyes of those whom Mr. Bernard Shaw calls "th incurably romantic."

* * * *

That delightful gossipping philosopher, "Th Londoner," of the "Evening News," has, it seems, friend who is, or was, an architect. "The playf fates which lark with our destinies, which make tinkers and tailors, soldiers and sailors, without allo ing us any fair choice, told my friend to be an archite nd an architect he was, hard at work with a board and T-square, before he had time to say nay. But he ught to have been a toyman." There was to be an xhibition of toys: proceeds for the benefit of the elgian refugees; and "So soon as my friend heard of ie scheme he covered up his Elevation of Proposed Iew Baths and Washhouses and began to make toys s though he had been bred to the business, as though e had been a Noah's arkitect from the cradle." Well!

* * * *

Never were such toys as the architect made, and The Londoner" infers that we English have the enius that could make a wreck of Germany's export y trade. But, alas, "English commerce lacks alert- ess: my poor friend will go on toiling as a mere archi- ct, laying out ground-plans, taking out quantities— e hates taking out quantities." A light breaks in pon us. Many a pretty-pretty, Ideal Homey, garden- iburby little villa has filled us with faint, sweet iemories of we knew not what. But now we know. was the enchanting art of the toyman. Clearly The Londoner's" friend is not the only architect ith a genius for toy-making. It is merely a question f scale. But why does he mortify his flesh with the king out of quantities? Are the quantity surveyors l so busy—toy-making, perhaps—that he can find no ircease from his hateful task?

* * * *

"Mr. Punch" must needs have his fleer at "short-life" hools. He takes for his text this news item: "As iere is every probability that the child population Kensington will decline in the future owing to the igration of families to the outer suburbs, the L.C.C. oposes to meet the present demand for a new school building a 'short-life school,' one that will last but enty years." "Punch's" comment is: "The difficulty, course, will be so to construct it that it will collapse ntly on the last day of its twentieth year, and the oblem threatens to tax to the utmost the ingenuity of ir jerry-builders." If "Mr. Punch" will search his vn heart and his own files, he may possibly perceive at he is himself engaged in edifying with the lighter hough not always the newer) materials of construc- on, but is not therefore necessarily a jerry-builder; id we fervently hope that any "wonderful-one-hoss- iay-like" collapse that may ultimately overtake him ill be delayed far beyond the term of years which he whimsically interprets.

* * * *

If manufacturers are not by this time fully awake to eir opportunities for the capture of enemy trade, it not the fault of the property agents. Railway ation hoardings bear the cheery injunction to build ctories while the sites are still available, as the land being rapidly taken up by merchants anxious to get eir share of enemy trade; and a firm of "factory ecialists and surveyors" report to the "Financial ews" that in 1914 the sales and letting of factory operty, wharves, land, etc., showed far better results an those for the preceding year, the war having pro- iced a demand for factories and commercial property all descriptions. This demand arose primarily to eet the requirements of the Government for the anufacture of the necessary war equipment, and condarily for the manufacture in this country of goods eviously imported. It is stated also that Belgian anufacturers are acquiring or building in this country ctories in which to carry on the industries which the ir brought to a standstill in their own country. More- er, according to this firm of specialists, "the declara- on of peace should mean the opening up by our anufacturers of an enormous overseas trade, both th our colonies and new possessions and with the rld's markets in general." We can the more readily lieve it since this is exactly the view we have consis- ntly expressed from the outset.

At the very moment when we are being advised (perhaps with doubtful wisdom) that our underground cellars afford us the safest refuge against possible attacks by assassins in the air, the London County Council are seeking powers, in their new Act, to abolish basements. That, at any rate, seems to be the spirit of the provision that "where any part of a house or building cannot, in the opinion of the Council, be drained by gravitation into a sewer under all conditions of flow in such sewer," the owner may be required, if in the opinion of the Council that course be necessary, to fill in the basement, but he will not be compelled to do it at his own expense, as the Council will reimburse him within reasonable limits. We are glad to see this recognition of an equitable principle that we have often advocated—namely, that a property owner who is compelled to do something in the public interest should not thereby be made to suffer loss, or possibly ruin. It is evidently realised how great a hardship may be inflicted, for instance, on the inheritor of a few houses who finds that in taking them over he has incurred a greater liability, in the matter of drainage or other requirements, than the property is worth. As for basements, they are out of fashion; but where they remain they certainly cannot be allowed to continue in existence as a menace to the public health. Cellars are in a different category. With them there need be no question of drainage. There are up-to-date methods of keeping them perfectly dry; and where they are used mainly for coal-storage, and are kept reasonably clear of the miscellaneous rubbish which in untidy households naturally gravitates towards them, and when, as in modern dwellings they always are, they are sufficiently ventilated, they help to keep the house dry and well aired.

* * * *

Often, as may be supposed, we receive for publication letters which we do not feel justified in printing. Naturally the decision must be left to the editorial discretion. One such letter which is now before us relates to recruiting. Its writer makes a complaint with which we have but small sympathy. Its essence amounts to little more than an assertion that architects and members of the allied professions have been required to perform the menial but eminently useful offices that fall to the lot of soldiers serving in the ranks. Our correspondent does not state his grievance in this bald way, and that is why we do not print his letter; for the case, as he states it, might possibly have a deterrent effect on a few Sybarites who are still hesitating as to whether or not they shall do their plain duty.

* * * *

Not but what the army would be better without the fastidious and over-sensitive youth who thinks more of his own personal comfort than of his country's need; but we have it in mind that the Laodicean himself would be all the better for the opportunity of hardening his heart and his muscles by a little wholesome outdoor exercise, and we should be sorry to put into these pages any word that would deprive him of so fine a chance of proving his manhood. Curiously enough, there came to hand almost simultaneously with our correspondent's complaint a private letter from a young professional friend now serving with the colours who, if he were not too happy to make a grievance of his particular disappointment, might be said to have provided us with an exact equipoise to our correspondent's jeremiad. Our cheery friend simply revels in the rough work that falls to his share, and it is his constant dread that he may be at any moment withdrawn from the manly work of excavation and barrow-wheeling and put to the far less congenial work of the draughtsman's office. He is actually sorry that the authorities are aware of his professional skill. His, we feel, is the right view. One should not join the army as an architect, but as a soldier.

THE PLATES.

Cunard Building, Liverpool.

ON the fine open site at the Pierhead, Liverpool, two important buildings have already been erected—the Mersey Docks and Harbour Board Offices, by Messrs. Briggs, Wolstenholme, and Thornely, and the Liver Building, by Mr. Aubrey Thomas. Between them is now in progress of erection a building which will form the head offices of the Cunard Steamship line. From the plate of the main elevation, which is given in this issue, it will be seen that the design follows the style of the Roman Renaissance palaces. There are six floors, with a bold crowning cornice, and plain attic. Reinforced concrete is being used for the construction, with Portland stone as a facing. Messrs. Willink and Thicknesse, FF.R.I.B.A., of Liverpool, are the architects, associated with whom are Messrs. Mewès and Davis, of London and Paris, as consulting architects. The contractors are Messrs. W. Cubitt and Co., of London. The ground-floor plan of the building is reproduced on the next page.

Palazzo Bartolini-Salimbeni, Florence.

There is an air of magnificent dignity about this façade which at once arrests attention, and a careful study of its parts serves but to confirm one's first impression of admiration. The ground floor has a well-proportioned central doorway surrounded by smooth stone walling, and above is a fine scheme of fenestration, while the strong cornice fittingly completes a design which displays in every part the hand of a talented architect. The Palazzo Bartolini was built about 1520 from the designs of Baccio di Agnolo, to whom also has been attributed the Palazzo Antinori, one of the most delightful of the smaller Florentine palaces.

New Wing to Madingley Hall.

Madingley Hall is an ancient house of considerable historical and architectural interest, which had fallen during last century into neglect, in spite of the fact that the late King Edward lived there for the period when, as Prince of Wales, he was at the University of Cambridge. The house and estate were eventually acquired by Colonel Harding, who proceeded with much taste and knowledge to make the house more worthy of its traditions by embellishing it within in a manner suitable to its date. In course of time the reinstatement of part of the north wing, which had been pulled down in order to dig for the minerals beneath it, came under consideration, and it was carried out under the advice of Messrs. Gotch and Saunders in the manner shown. The terraces and steps adjoining the house were erected at the same time; subsequently the long terrace wall with its steps was added, to the great improvement of the general appearance. Much care was bestowed upon the selection of the bricks for the new work, and by choosing them from different yards, and of a variety of colours, a general tone was obtained hardly distinguishable, even at close quarters, from that of the old work. The stonework was also toned down to harmonise it with the old stonework, and the casual observer would not suppose, unless he were told otherwise, that he was looking upon work that was but a year or two old.

Houses on Ham Common.

These two houses suggest the wide range in treatment which is possible even with small compositions. Forbes House presents a long low front, with two simple ranges of windows, the central one giving a focus to the composition. A well-designed cornice serves as a binding line across the slightly advanced central block, which is further marked by quoins. In this manner the façade is prevented from appearing monotonous. The whole scheme is quite unobtrusive has an air of well-being about it, and is attractive in these respects. A detail of interest is the wrought iron gate, of eighteenth-century type, between brick piers crowned by stone pine-apples. In the case of the other house illustrated, Ensleigh Lodge, it is the unusual outline that attracts attention, the wings being shaped to the form of a cyma reversa, and each having a large arched opening; one filled by a window, the other by doors to a coach-house. The entrance door way is not emphasised, its position being such that to do so would upset the whole composition and make i lop-sided.

Balusters, No. 5, Bloomsbury Square, London.

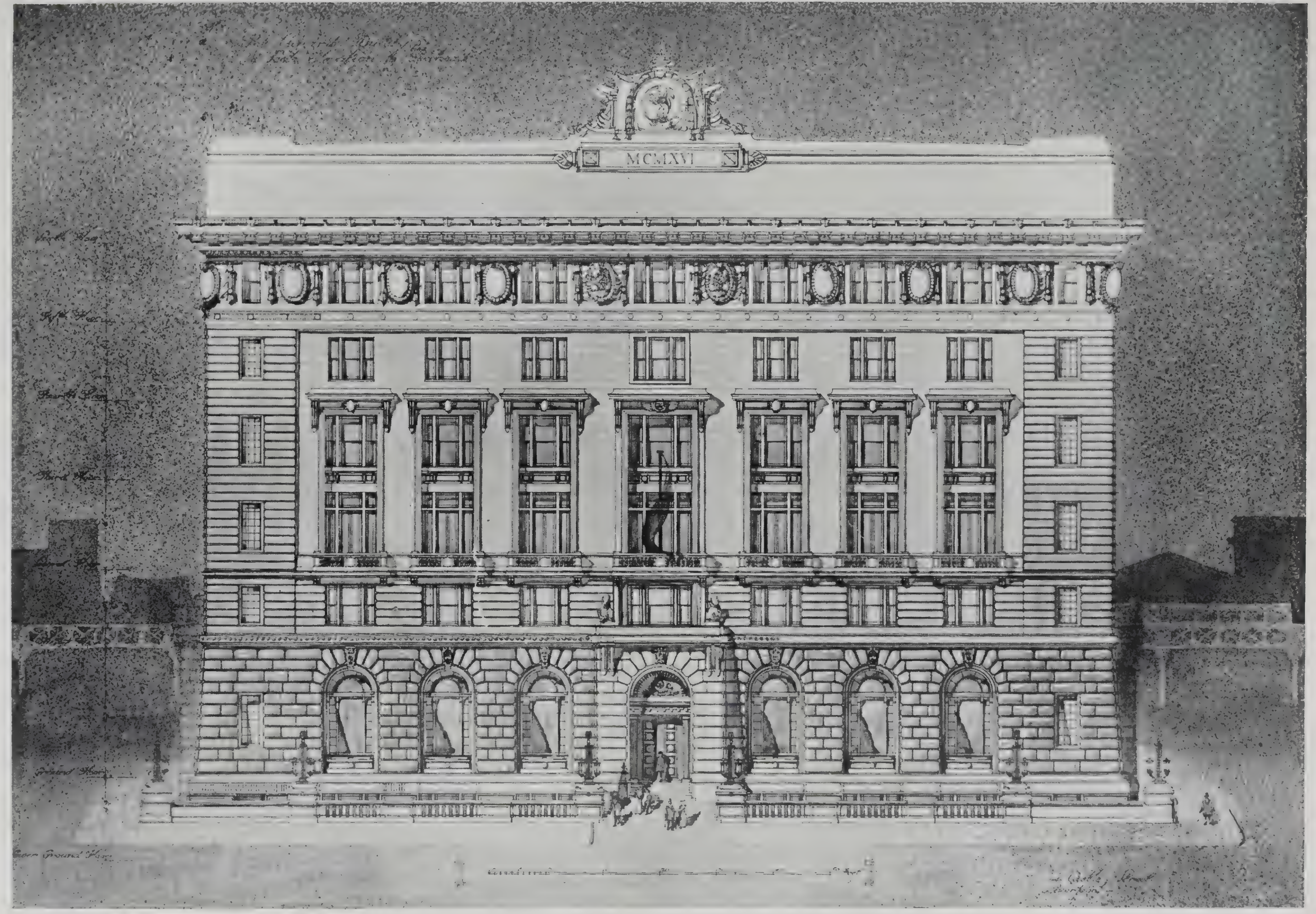
Isaac Ware (d. 1766) was the architect of No. 5 Bloomsbury Square, which is a very characteristic example of his work. There are two interesting types of iron balusters on the stairs, one, on the main stair from the entrance hall to the first floor, a fine specimen of wrought iron, with scrolls and leaf work the other, from the first floor to the second, in cast iron We publish a detail of the latter. This is undoubtedly of late eighteenth or early-nineteenth century date, as may be judged from its Greek character. The casting is very clean and well finished.

Cambacérès Monument, Père Lachaise, Paris.

In this design, erected to Prince Cambacérès, juris and second consul after the 18th Brumaire, four angle pilasters support a Doric entablature, which forms the base for a marble altar of antique form. On the front of the altar are carved the arms of the prince, with a laurel wreath on each of the other faces, and reversed torches at the corners. The monument was designed by M. Marcel, the sculpture having been executed by M. Plantar. To those not familiar with the Cemetery of Père Lachaise—and few are familiar with an enclosure containing more than 20,000 monuments—the possibilities of architectural effect in the design of tombs will hardly be appreciated. Great interest therefore, attaches to this series of designs, dating from a period when classical architecture was well understood. As will be seen, they comprise a great many different types.

Design from Krafft.

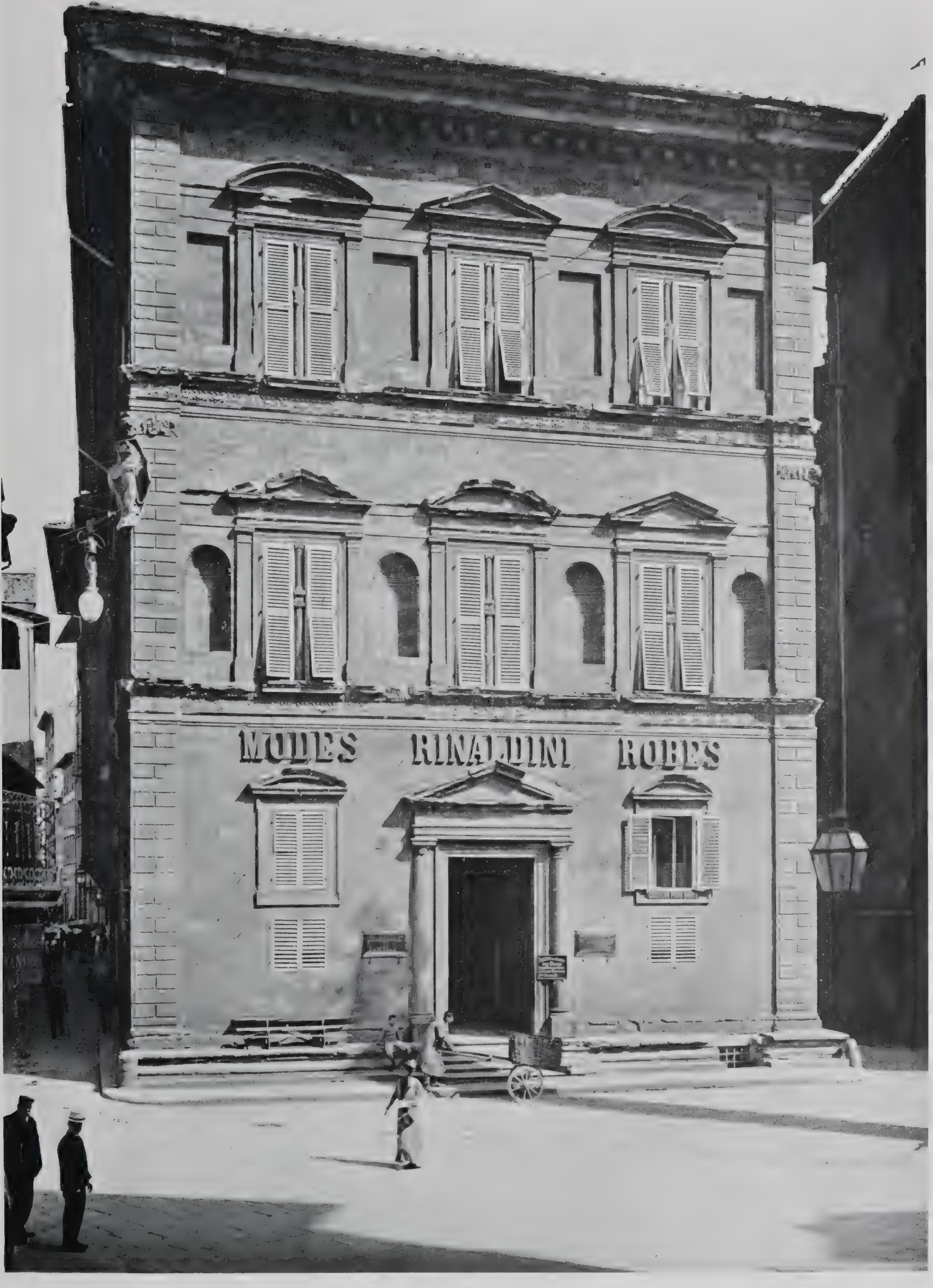
The garden pavilion at Versailles illustrated this week is described on Krafft's plate as being for the "ci-devant Md. Elisibeth"—presumably that unfortunate woman, sister of Louis XVI., who, if she shared the joys of the great palace with Marie Antoinette, also shared the terrors of the Temple, and was guillotined on May 10, 1794. The pavilion is quite grandiose in its diminutive way, providing a stately circular dining-room with a salon leading out of it on one side, a bedroom on another side, and a boudoir on a third side, with kitchen and appurtenant offices below ground; the whole very ingenuously planned. These designs from Krafft include a number of most engaging shapes for rooms, and in studying their disposition it is not a little strange to notice how curiously juxtaposed these often are, according to modern ideas. In the house at Meudon, for instance, illustrated last week there is a bathroom opening out of the dining-room while in the bedrooms the accommodation of a fair-sized bed would seem to have been a difficult problem Nevertheless, the designs are most serviceable, and apart from the elegance of their exterior architectural effect they offer many a suggestion in axial and symmetrical planning which should prove acceptable to architects to-day. It should be noted that Chalgrin who designed this garden pavilion, was the architect of the great Arc de Triomphe erected by Napoleon Some particulars of Krafft's career will be found on page 43.



CURRENT ARCHITECTURE. C.—CUNARD BUILDING, PIERHEAD, LIVERPOOL.

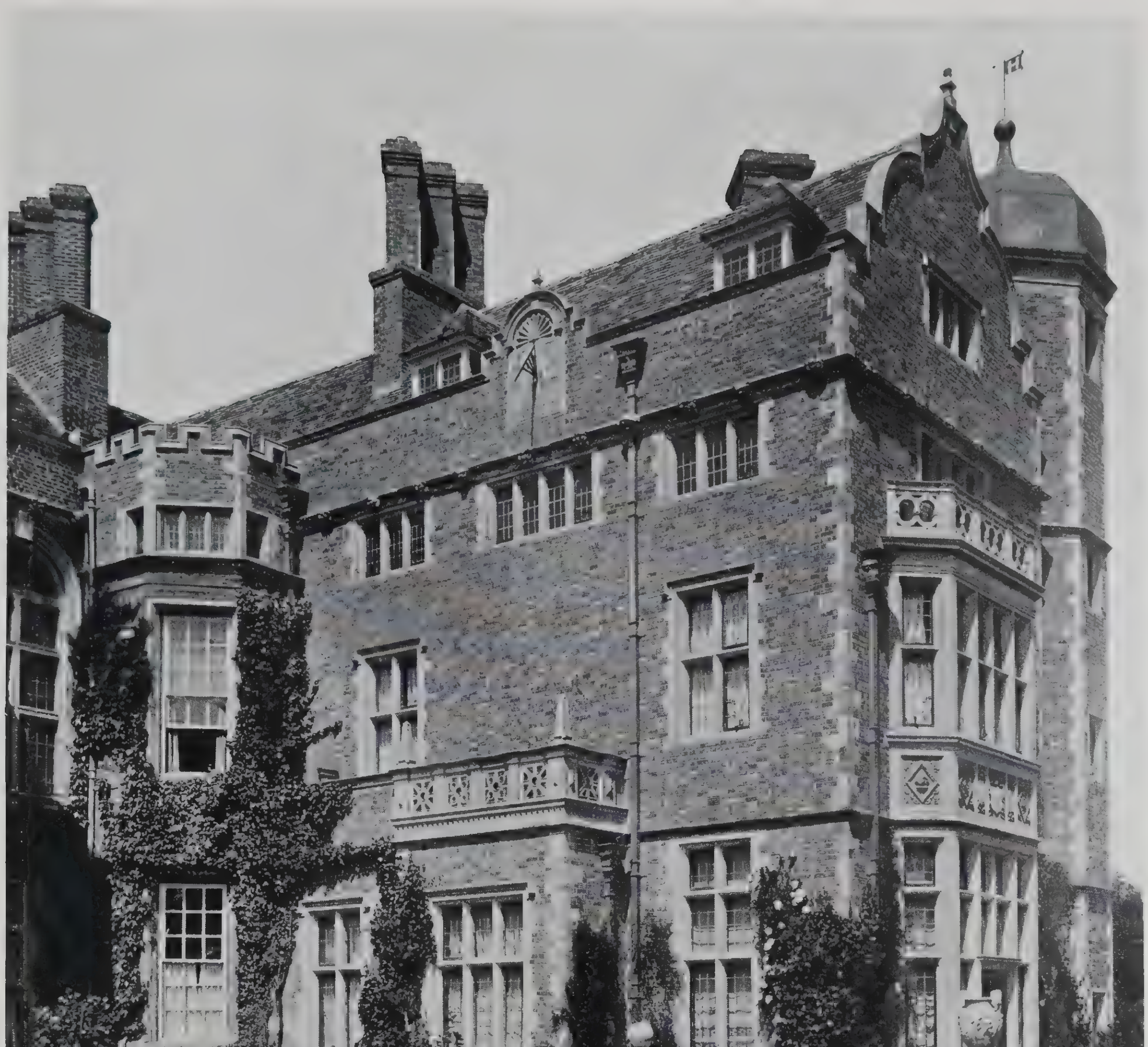
WILLINK AND THICKNESSE, FF.R.I.B.A., ARCHITECTS. MEWÈS AND DAVIS, CONSULTING ARCHITECTS.

nt to " The Architects' and Builders' Journal," Wednesday, January 27, 1915.

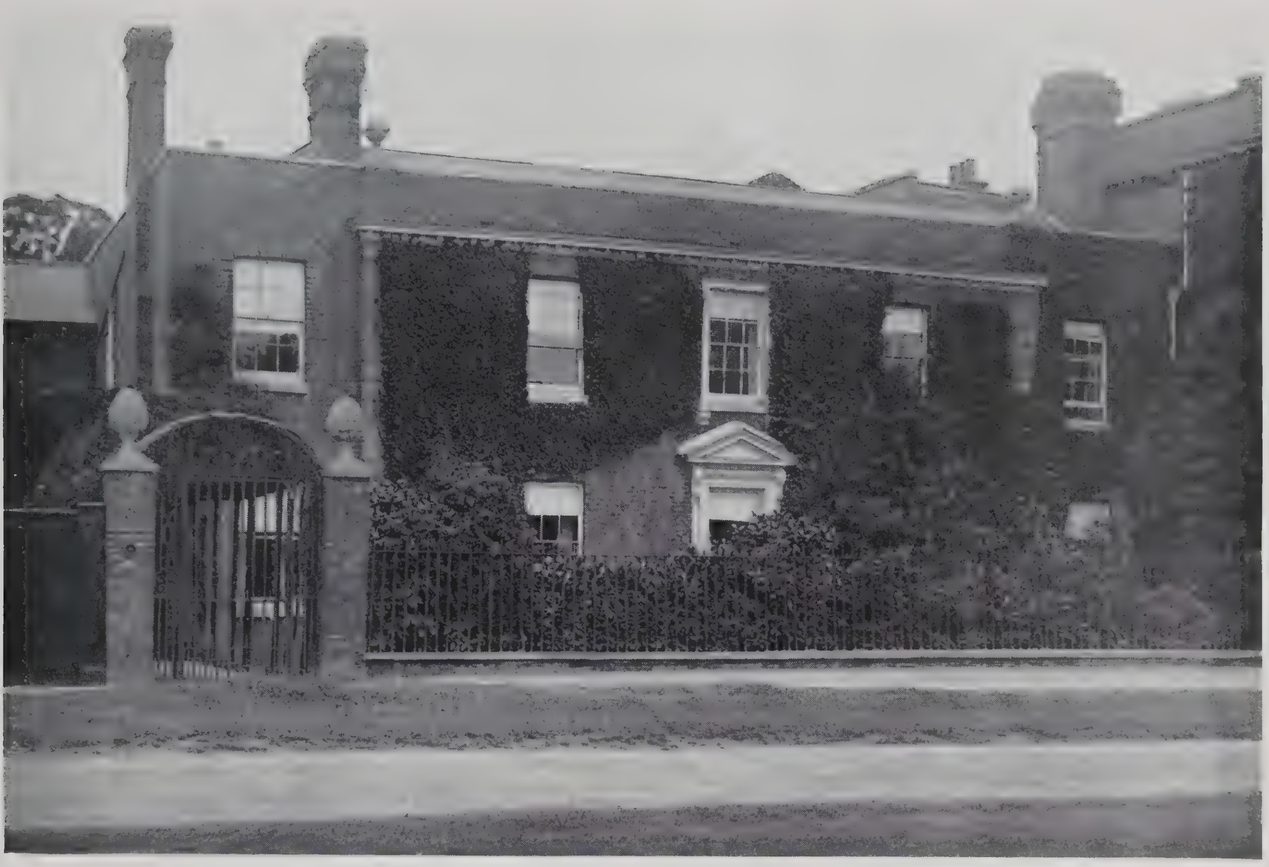


FLORENTINE PALACES. VIII.—PALAZZO BARTOLINI-SALIMBENI.

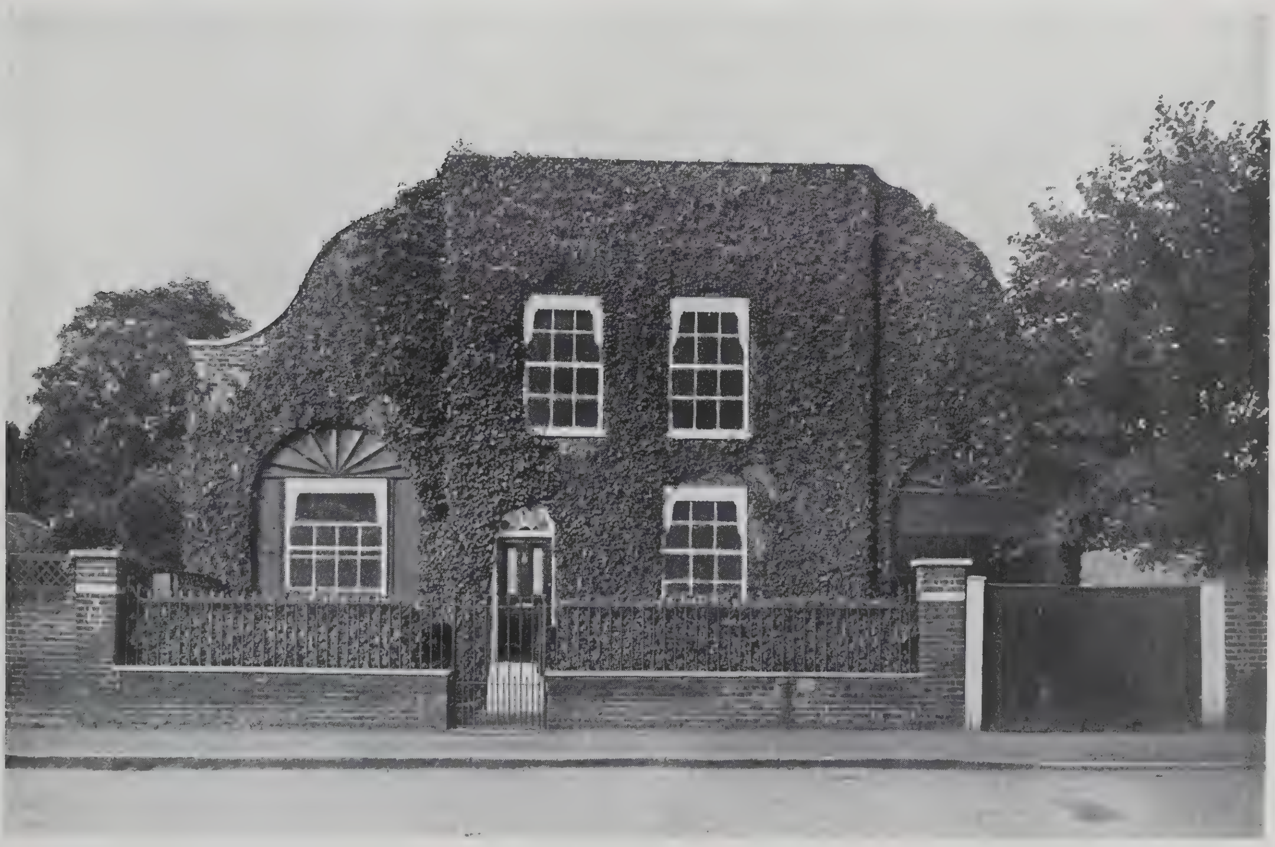
BACCIO DI AGNOLO, ARCHITECT.



MODERN DOMESTIC ARCHITECTURE (SERIES II.). III.—NEW WING, MADINGLEY HALL, NEAR CAMBRIDGE.
GOTCH AND SAUNDERS, ARCHITECTS.

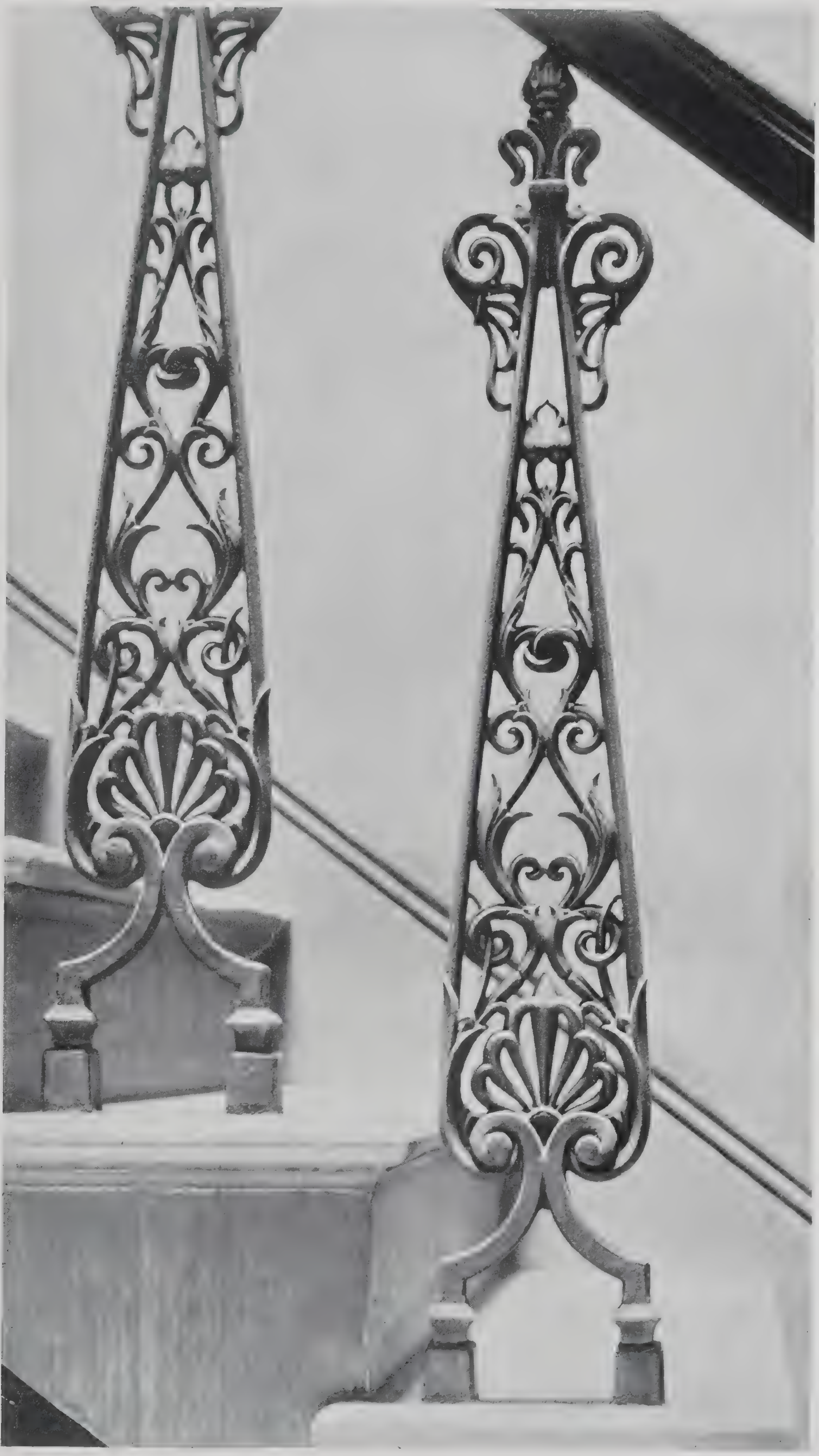


Forbes House.

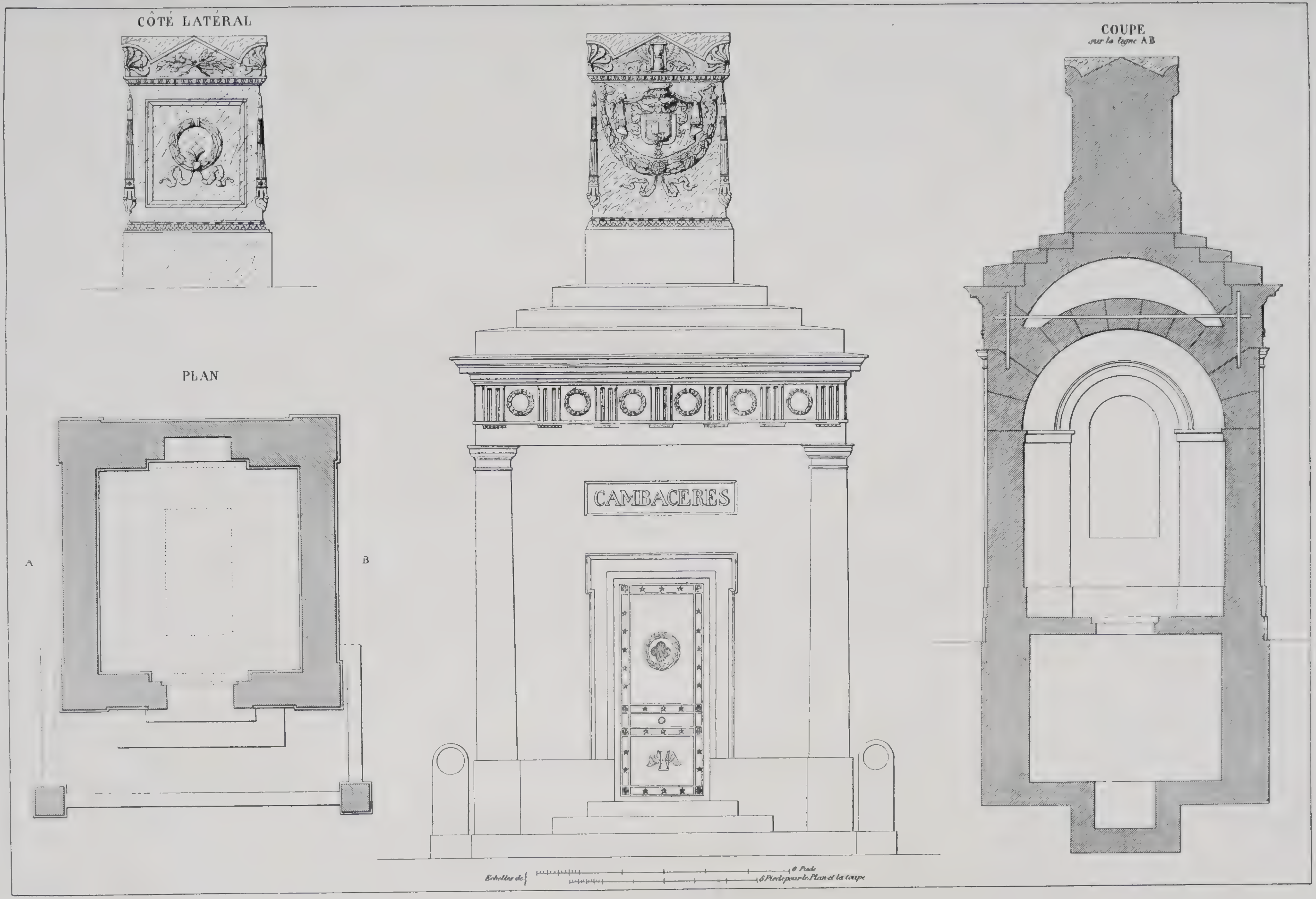


Ensleigh Lodge.

SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XXXIX.—TWO HOUSES ON HAM COMMON, SURREY.



DETAILS OF CRAFTSMANSHIP. IV.—CAST-IRON BALUSTERS, No. 5, BLOOMSBURY SQUARE, LONDON.



FRENCH MONUMENTS. II.—CAMBACÉRÈS MONUMENT, CEMETERY OF PÈRE LACHAISE, PARIS.

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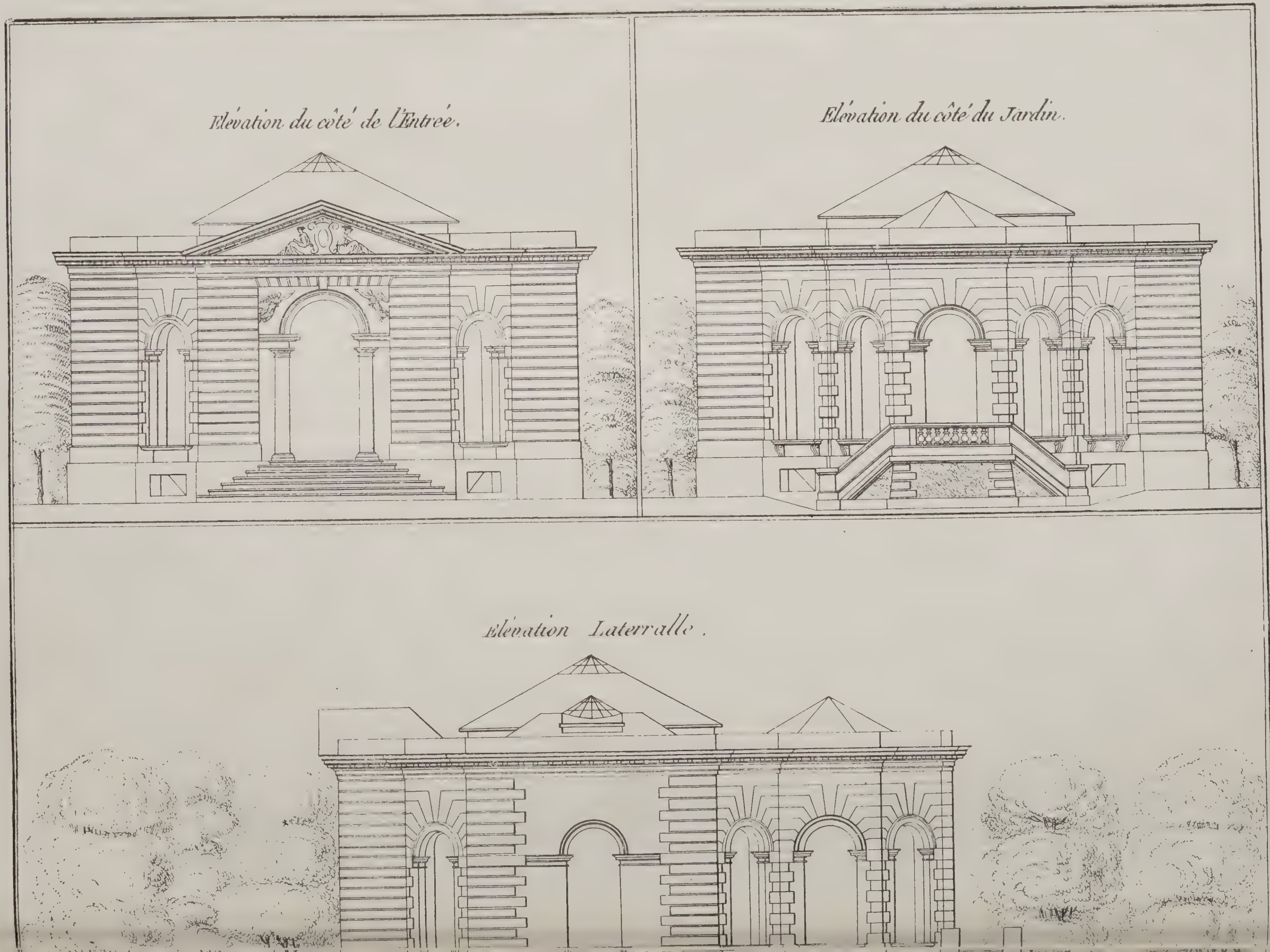
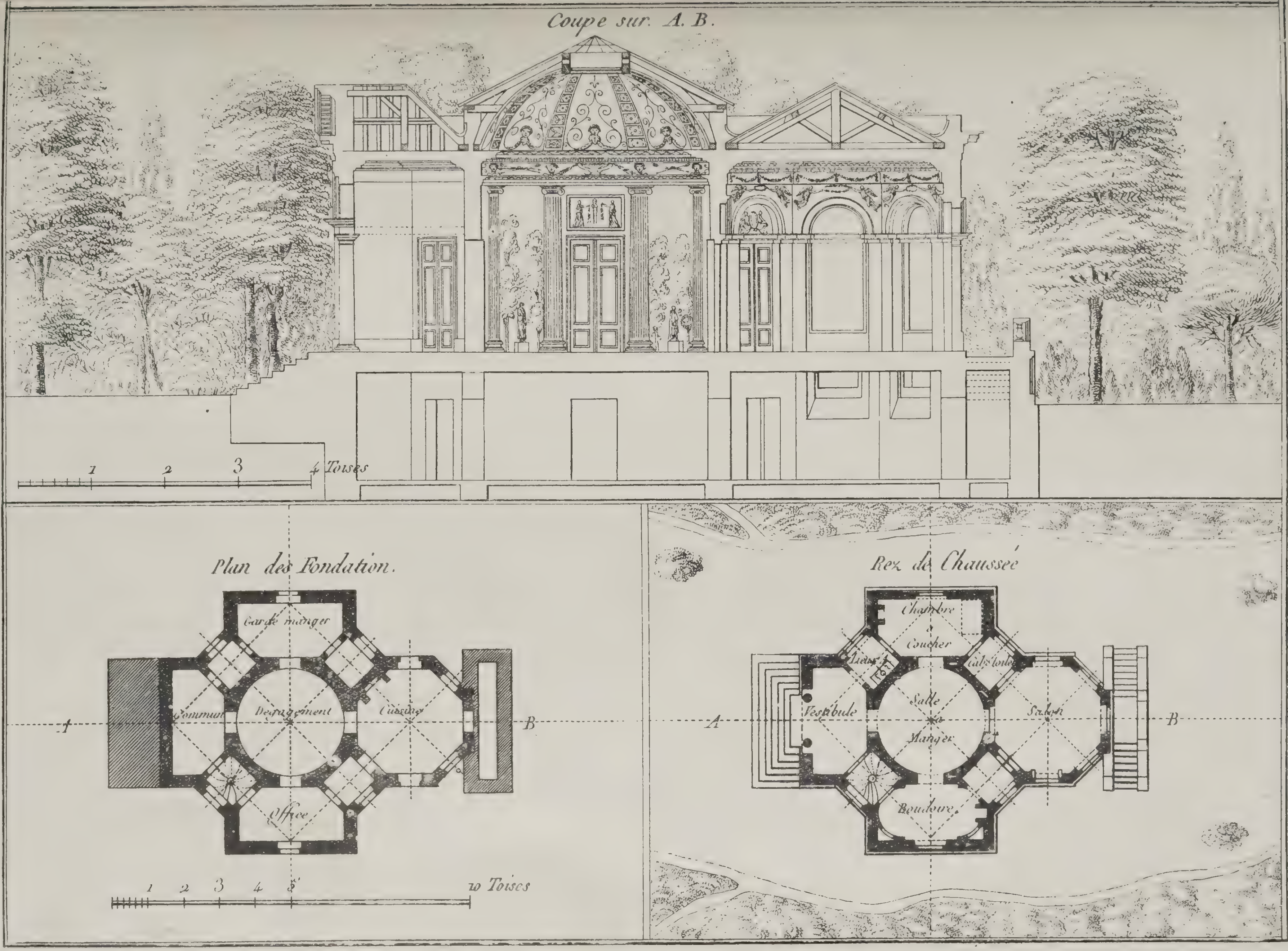


Elévation du côté de l'Entrée.

Elévation du côté du Jardin.

Elévation Laterralle.



Coupe sur. A. B.

Plan des Fondation.

Rez de Chaussée

DESIGNS FROM KRAFFT. II.—GARDEN PAVILION AT VERSAILLES.

CHALGRIN, ARCHITECT.

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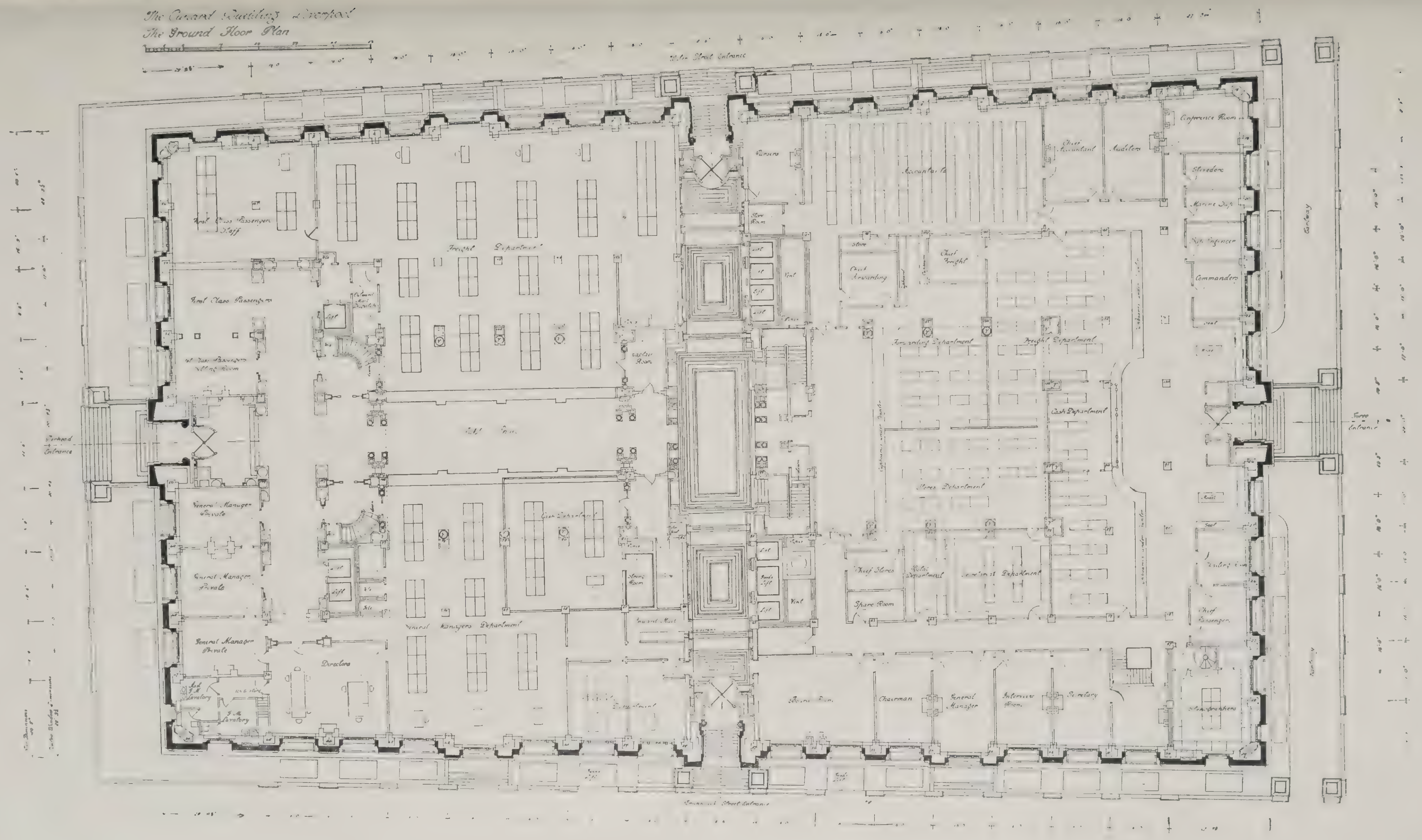


CUNARD BUILDING, LIVERPOOL: GROUND-FLOOR PLAN.

WILLINK AND THICKNESSE, FF.R.I.B.A., ARCHITECTS. MEWÈS AND DAVIS, CONSULTING ARCHITECTS.

A LIST OF EIGHTEENTH-CENTURY ARCHITECTS IN IRELAND.

BY PAGE L. DICKINSON, M.R.I.A.I.

THE following is a list of architects who carried out work in Ireland during the eighteenth century:—

The Brothers Adam.

The chief works carried out in Ireland by these famous brothers are: Castle Upton, additions and stables; Aldborough House; many interiors in Dublin and elsewhere; several designs for alterations and additions to various country houses. The plans in some cases are preserved in the Adam Museum.

John Aheron.

Probably came to Dublin from Limerick. Practised in Dublin in the middle of the eighteenth century. He made several designs for houses in Ireland, some of which were published by him in a book. The author has been unable to trace evidence that any existing houses are from his designs. There is no date, but many of the plates are dated 1754. Newbury rather suggests his work—the only house I can think of that does so, except the Glasnevin Convent (Archbishop Lindsay's House).

Bindon.

Son of David Bindon, Clooney, co. Clare, M.P. for Ennis. Studied in Italy and elsewhere. Died 1765. His architectural works include: Bessborough, Kilkenny; Woodstock, Kilkenny; Castlemorres; Russborough, in conjunction with Cassels, or added to after death of Cassels. Bindon also practised as a portrait painter.

Cassels.

Celebrated as a great domestic architect. He combined good planning on noble lines with great refinement of detail. His work is nearly always simple, and depends on its good proportions and direct appeal for its effect. He employed the Doric Order far more than any other, and another special characteristic is his use of barrel or vaulted ceilings. He made an important feature of his entrance halls, which frequently have high coved ceilings. In his use of the Orders he adhered to fairly strict Classic proportion. His most simple details are full of charm, and are nearly always effective. He used the Venetian window frequently. His works in Dublin comprise: Leinster House; Rotunda; Molesworth Street houses; Henrietta Street houses; Tyrone House; dining-hall at Trinity College; the University Press; Bank (possibly designed original); Clanwilliam House (probably); Nos. 18 and 18a, Sackville Street; in the country—Ballyhaise, co. Cavan; Newbridge, co. Dublin; Carton, co. Kildare; Hortland, Kildare; Westport, Mayo; Ballinter, Meath; Summerhill, co. Meath; Roundwood (?), Queen's County; Hazlewood, Sligo; Waterston, Meath; Powerscourt, Wicklow, remodelled; Russborough, finished by Bindon.

Sir William Chambers.

The well-known English architect. His work is generally strictly Classic, and the formal proportions of the Orders are usually adhered to. He was always scholarly and dignified without, perhaps, showing any very striking note of his own individuality. His works in Ireland comprise the Casino, Marino, co. Dublin; the Chapel at Trinity College, Dublin; the "Ely Gate," Rathfarnham Castle.

Thomas Cooley.

1744-1784. Came to Dublin in 1769, when his design for the Royal Exchange, submitted in competition with sixty others, was successful. His work shows a fine conception of planning and massing. His detail does not call for special comment. Works—In Dublin, Old Hibernian Marine School (Ivory, according to Falkiner); Newgate; Four Courts, façade of w wing; City Hall. Mount Kennedy, co. Wicklow.

Davis Ducart.

Killshannick, co. Cork; Castletown, co. Kilkenny

George Ensor.

Practised in Dublin. There is no record of a country work by him, with the exception of c example. He was apparently also a speculat builder, as several leases of building sites to him are existence, and in many cases there is a record of having built houses on these. His work was entir in the Adam style of the last quarter, although it i speculation as to how much of his decorative work v his own design. His planning was rather good, and generous lines. Works in Dublin—East side of R land Square; Antrim House, Nos. 33 and 34, Merr Street; houses in St. Stephen's Green; houses in Hu Street, etc.

James Gandon.

1745-1824. Apprenticed to Chambers. Came Dublin in 1781, to build the Customs House. Practis there until his death. His plans were often inco venient, but no architect of his day understood bet how to produce an effect of grandeur in a buildi His detail is vigorous and individual. Works Dublin—The Four Courts (completed Cooley's desi but largely modified this); Customs House; portico House of Lords; Military Hospital; Old Carli Bridge. Emo, Queen's County.

Thomas Ivory.

Started as a carpenter in Cork, but studied drawi and architecture, and became drawing master at t Royal Drawing School. His work shows gre delicacy and skill in handling the Adam type that w the fashion at the time he practised. Works—Ne comen House—(bank); the Bluecoat School (r completed to his design).

Francis Johnston.

1761-1829. The best known Dublin architect of day. He lived in 64, Eccles Street, and was archit to the Board of Works. He practised during the ti of the Greek Revival and was influenced by th Works—St. George's Church; Bank of Ireland (alte tions); G.P.O.; Gateway to Royal Hospital; R.H. presented by him to the city; Townley Hall, Louth.

William Leeson.

Works—Pallas, co. Galway; Kilboy, co. Tipperar Traverston, co. Tipperary.

Robert Mack.

No record seems to exist of this architect beyo the fact that in 1761 he lived in James's Street and w described as a mason. He was probably a build Powerscourt House, Dublin. was designed by him.

William and James Paine.

English architects of some renown. They wro several books dealing with various architectural su jects, which are profusely illustrated from their o drawings. They are described in a publisher's adve tisement of 1805 as "Architects and Carpenter Their decorative work is in a degenerate Adam sty Ballymoat, co. Roscommon, was erected from th design.

Peters.

Brown's Hill, Carlow.

Rothery.

Mount Tobin, Clare; Doneraile, Cork; Newmark Cork; Clonfert, Cork.

George Semple.

Seems to have had an important practice, although ew authentic buildings by him remain. His work, so ar as can be judged by remaining examples, shows implicity of detail and general grouping. There is o record of his training. Towards the end of his life e published a book under the title of "Hibernian Free rade," as a plan for the general improvement of reland, MDCCLXXX. The first part deals with echnical details, of building bridges and other strucures under water, and the second with the improveent of the commercial and landed interest in Ireland. good deal of the book is taken up with minute details f the difficulties he encountered when designing and reparing the foundations of old Essex Bridge. His riginal drawings of the building are preserved in wift's Hospital. Works—Swift's Hospital; old Essex ridge.

Sandys.

Sallymount.

John Smyth.

Works—St. Thomas's Church; St. Catherine's hurch (rebuilt); Provost's House (working drawings).

James Wyatt.

Probably the inventor of the window of the threeght sash type called "Wyatt" windows. His work es not show any great skill or power of design. orks—Castlecoole, co. Dublin; Avondale (probably).

Authorities.—Georgian Society, Vols. 1-5; Dublin, S. A. O. Fitzpatrick; Dictionary of Dublin, by E. acDowell Cosgrave, M.D.; Foundation of the King's ospital, by Sir Fredk. R. Falkiner; Malton's Views Ireland; Dictionary of Irish Artists, by W. G. rickland; Hibernian Free Trade, by G. Semple; the actical House Carpenter, by William Paine; A eneral Treatise of Architecture, by John Aheron; ncyclopædia Britannica; Arthur Young, etc.

A NOTE ON KRAFFT.

EAN CHARLES KRAFFT, the celebrated architectural draughtsman, a series of whose drawings are now being illustrated in this Journal, was rn in 1764. After the Revolution he settled in Paris, ere he seems to have been carried away with husiasm for the magnificent buildings then in gress.

urand's masterly exposition of all known architural compositions was published in 1800, but this lt with the aspect of monumental architecture. The rgies and discernment of Krafft, inspired no doubt the successes of Durand's volume, caused him to lect data in regard to the numerous villas and town ses newly erected in Paris and its environs.

e evidently knew that an appreciative audience ld soon be found for such a volume as he proposed, l his foresight in printing portions of the text in glish, French, and German was soon justified. ies of his publications were sent to every country, immediately influenced taste. All the leading glish architects, including Nash, Soane, Smirke, rdwick, and Cockerell, had copies of one or the er of the books. This in a great measure accounts the architecture of the Regency period, and later the development of a distinctive style for seaside ns and such suburbs as St. John's Wood, and the rbs of Bristol, Cheltenham, and Leamington. The ence and simplicity of the style illustrated by fft appealed to English taste, and although the itecture of Regent Street was the outcome of an inal mind and unique conditions, there can be no low of a doubt that contemporary French architec- offered some part of the inspiration.

he scope of Krafft's studies extended to buildings ted as early as 1780, and included villas from the fashionable suburbs of Passy, Auteuil, Boulogne, Meudon, Saint-Cloud, Versailles, Marly, Saint-Germain, Courbevoie, Choisy, Montmorency, Sarcelles, Epinay, etc. Illustrations from the foregoing places are embodied in *Plans, etc., des plus belles maisons et hôtels à Paris et dans les environs*, Paris, 1801-2.

In 1805 there appeared *L'Art de Charpente*, edited by Krafft, and in 1809 two volumes dealing with *Plans des beaux Jardins de la France*, and in the same year an important volume, *Portes cochères et Portes d'entrée de Paris*, with fifty plates. This series was continued by Thiollett, who published in 1849 a revised edition, including many later works.

Krafft drew the line illustrations in pencil and arranged the series in groups. He worked with Ransonnette, the engraver, and for the majority of the plates employed other engravers to assist in publication. The names on the plates, among others, include Boudions, Boulay, Hibon, and Van-Maëlle. Krafft died in Paris in December, 1833.

An extract from an advertisement of the period reads: Books sold by the editors—Krafft, Architecte, Rue de Bourgogne No. 1,463, Faubourg Saint-Germain; and Ransonnette, Graveur, Rue du Figuier No. 43, quartier Saint-Paul.

THE BUILDING TRADES EXHIBITION.

IT is now definitely announced that the Building Trades Exhibition, which normally became due in the spring of the present year, has been postponed to the spring of 1916. This decision should by no means be taken to indicate any lack of interest or of enterprise, and still less any trade depression. Nearly all the floor-pace at Olympia having been engaged, it would be quite possible to hold a representative exhibition, and the decision not to proceed with it was not reached until the close of last year, when it was realised that so many architects, builders, and surveyors, and members of their staffs being absent with His Majesty's Forces, and building trades firms being so busily engaged with Government contracts, the present year would be quite inopportune for the Exhibition.

CORRESPONDENCE.

Architects and Builders and Income-tax.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—As many architects and builders have been adversely affected by the War, I should like to draw the attention of your readers to the concession which was granted by the Chancellor a short while ago.

Where the profits of the present year have fallen below the average of the previous three years, a taxpayer has the right to bring into the average the profit for this year in place of that for the first of the three years already taken into average.

An example will perhaps more clearly illustrate this. Suppose a tax-payer's profits for the years 1911, 1912, and 1913 have been £1,500, £1,200, and £1,500 respectively, then the assessment levied upon him for 1914-15 would be upon the average of these three amounts—namely, £1,400. But if the taxpayer could prove that his profits had dropped to, say, £300 for 1914, then he would be entitled to take the average of the three years 1912, 1913, and 1914, and in this particular case they would be £1,000, so that a saving of tax would be effected upon £400, which, at the high rate at present in force, would mean a considerable amount.

WILFRED T. FRY, Secretary.

The Income-tax Reclamation Association, Ltd., 62 and 63, Queen Street, London, E.C.

MODERN CONTRACT MANAGEMENT.

The revolutionary changes which have been and are taking place in building methods have, perhaps, rather tended to obscure the accompanying changes in the *personnel* of the building staff.

To take first the general foreman: we are all acquainted with the old type. He was usually a man who had occupied progressively all the positions subordinate to his final eminence, was of ripe experience, and had a great deal of sympathy with his work—largely the outcome of having been a craftsman himself. He generally surrounded himself with trustworthy "subs," who relieved him of the necessity of continually watching the men and the work, thereby enabling him to devote the necessary time to the devising of ways and means and arranging things with the foresight which is an essential factor of success—financial or other. All things on the job were subservient to his authority, and he was, of course, responsible for the way in which the ledgers balanced. Given the right man there could be no better arrangement.

The modern tendency is for the large contractor to employ an "outside manager" or "walking foreman"—usually recruited from the ranks of the foremen already in his employment—and it is their duty to visit the various jobs and arrange for the delivery of materials and the conduct of the various sub-contracts. They thus relieve the foreman of a good measure of responsibility, and this relief is regrettable, for, as every student of human nature knows, the consciousness of responsibility stiffens the back of a capable man, and any compulsion to do anything against what he deems—rightly or wrongly—to be his better judgment does not tend to make him keen upon its success.

It is also the practice of modern contractors to sublet the greater part of their work, with the frequent consequence that nothing remains directly under the foreman's control but the carcass of the building and perhaps the fixing of the joinery. Hence too often one hears the remark, when the work of another contractor is concerned, "That's their trouble," so that the progress of the job is frequently a record of strife between the various contractors, each seeking some advantage at the expense of the other—or of the job—and things are done out of their proper sequence, with the inevitable result. The clerk of works—if the job be so fortunate as to have one—has added to his already numerous functions that of peacemaker, and he often needs to be a born diplomatist to evade responsibilities, properly belonging to other people, which they will undoubtedly attempt to thrust upon him unless he is particularly wary.

Under the new system the contractor, realising the lessened amount of responsible work the foreman has to do, often insists upon giving him a smaller wage, or, alternatively, upon his dispensing with and doing the work of the sub-foremen, forgetting that the looker-on sees most of the game and also depriving himself of the services of those men whose self-respect would not permit of their accepting such conditions.

In the matter of salary, most employers are prone to view with alarm any substantial increase; and where a good number of men are concerned, it is no doubt a formidable matter; but when a man is placed in a position where by his vigilance he can save or by his carelessness he can lose his employer pounds any and every day, an extra half-guinea or so per week pales into insignificance.

The writer recalls a significant incident bearing upon this. A man had applied for a certain position of responsibility. In the course of an interview, the question of salary being raised, the applicant named a certain rather modest sum as being acceptable, whereupon the prospective employer—who may be counted as one of the most successful men in the building world—informed him that no man in his employment holding a similar position to the one under discussion received so small a wage, and, strange to say, the applicant was not engaged, the employer evidently supposing that the applicant had asked for as much as he thought himself worth.

The ranks of the various tradesmen employed on a building are at present a mixture of two generations, and the difference between them is, to a superficial observer, not very apparent; but to those intimately in touch with them, it is there to a marked degree. This is not intended to be a slight upon those of the last generation, who under great difficulties rendered themselves competent in a manual and intellectual sense, but refers to the majority, who were largely the creatures of circumstance.

At one time—not very remote—a foreman would regard jealously any of his subordinates who evinced any desire to acquire a knowledge of the things which he deemed to be his special preserve, and I have known a sub-foreman discharged because he had the temerity to enter the "holy of holies" and examine the drawings which his superior thought it his exclusive function to interpret.

It used to be said that all that was required of the average journeyman was a certain amount of manual dexterity—the common phrase was "main strength and ignorance"—and any attempt to use his reasoning faculties was deprecated as presumptuous.

All this is now happily altered, and the artisans of to-day have departed to a large extent from the custom of their predecessors who "By geometric scale did gauge the size of pots of ale," or worked out the propositions of Euclid in the sawdust on the tap-room floor during spells of inclement weather, greatly to the wonder of those of their fellows who were not so well informed and who regarded them as intellectual giants.

The reasons of the changes are—first, the comparatively superior education with which the present generation has been equipped, and, secondly, the facilities they have enjoyed for technical education; and the result will be even more apparent in the next generation.

It is the custom now to bewail the modern decay of craftsmanship, and hold up to emulation the work of other days. Very often what is most greatly admired and called "individuality" in the mediæval workman is actually the result of slovenly workmanship or irregular materials, and is by no means due to the superiority of craftsmanship claimed for it. There is better and more highly skilled work turned out to-day than ever before, and any attempt to produce artificially the effects referred to will only result in decadence.

It is to be hoped, however, that contractors will revert to the old-fashioned method of investing *one* man with the sole control of *one* job. It is the best way.

L.E.W.

SPECIAL LEGAL REPORTS.

Claim against Contractors.

Watts v. A. D. Dawnay and Sons, Ltd.

January 21. King's Bench Division. Before Mr Justice Bankes.

This was an action by Mr. Percival M. Watts, residing at Sidcup, Kent, trading as Messrs. Watts, Fincham and Co., against Messrs. A. D. Dawnay and Sons Ltd., constructional engineers, of Steelworks Road, Battersea, to recover a sum of about £242 for work and labour done and for goods supplied to the defendants viz., quantities of a material called Gypo, a non-conducting cement for encasing steel and iron work.

Mr. Holman Gregory, K.C., and Mr Morris appeared for the plaintiff, and Mr Gordon Hewart, K.C., and Mr. Shakespeare for the defendants.

Mr. Gregory said that the plaintiff, Mr Watts, had the sole right of selling Gypo, by an arrangement with a firm called Bennett, Lawes and Co. The defendants, who were constructional engineers early in 1913 had a contract with a firm of shopfitters, Messrs. Pollard and Co., t provide a factory for them at Aylesbur Street, Clerkenwell, and the plaintiffs supplied the Gypo to the defendants' order and it was duly used in encasing stanchions, etc., and the general iron work of the factory. Counsel said it wa suggested by the defence that the work wa unsatisfactory in certain particulars. Apparently Pollard and Co. would not accep the work (said counsel), and then the defendants said they would not pay th plaintiff. The plaintiff's case was that h had done the work contracted for with th defendants. For the plaintiff's case M Wm. Joseph Gascoine deposed that h managed for the plaintiff the sale of th material Gypo, which was manufactured by Bennett, Lawes and Co. Witne bore out counsel's statement as to the contract with the defendants and the du execution of the work. The material wa used for encasing ironwork to prevent co rosion and to provide a fire resister. stuck on to ironwork and was applied the form of a plaster. Under proper co ditions of ventilation it would take five six weeks to dry, and when dry the surfa was not quite so hard as ordinary cemen In this case, before the time for drying ha elapsed, work was carried out by the defendants that interfered with the proce and which tended to keep the moisture the material. The ventilation w insufficient for this purpose.

Cross-examined by Mr. Gordon Hewa witness said that the Gypo had to be mix with sharp sand or "breeze." On this j the Gypo was mixed with breeze.

Mr. Justice Bankes: There is a diff ence, of course, between breeze—there good breeze and otherwise? Witnes Yes.

Witness said there were different m ings, according to the surface that was be treated. It was not important that layers on these steel stanchions should not too thick.

The first coat for a stanchion should about ½ in., it should be left to dry, a then, presuming the total thickness to 2 in., the other inch and a half could put on in one layer and the whole smooth up. The work on the stanchions tended from early June to the followi October. Witness did not agree that cement on the stanchions was not prope set.

Further cross-examined, witness adhe to his statement that the ventilation w ısufficient, and added that wet timber was ;ought into the buildings. There were no ›mplaints about the Gypo while the job as on.

Witness did not recollect an interview of ıly 23, at which Mr. Pollard pointed out at the Gypo was not drying.

A considerable body of additional evince was called for the plaintiff's case.

At the commencement of the trial on the cond day his lordship said he had inected the building in question, and he d no doubt that the stanchions would t stand rough usage.

Evidence was then called on behalf of e defendants.

Mr. A. P. Lander, a traveller in the em›y of the defendants, said he had had perience in steel-work building and the e of Gypo, although he had never seen 'po mixed. In November, 1913, he exıined thirty out of the fifty stanchions, d their condition as a whole then was y soft indeed. Gypo did not dry as rd as Portland cement. Had the Gypo d in this factory been as the defendants ticipated, in accordance with and equal the materials supplied and laid by ıintiff and passed by defendants' prinals and their surveyor, it would have n perfectly satisfactory. In December bulk of the stanchions were not satistory. There was no reason why the terial should not be put on in the thickss it was.

His lordship said he was quite satisfied t this Gypo would never come away by elf, but as soon as it was knocked he nd it came away. He was satisfied it s water-resisting.

Mr. Gordon Hewart agreed that Gypo s not to be judged by the standard of tland cement.

Vitness said when he examined the nchions on December 2, in the presence plaintiff's witness, he pointed out what endants complained of, and plaintiff's resentative said that the Gypo had not l sufficient time, and secondly there was vant of air. Witness could not underıd either reply, as there was plenty of tilation in the building and a good time elapsed since the work had been done. stanchions complained of had never n in a satisfactory condition.

Iis lordship said he took it that only ›o ft. out of 25,000 ft. of this Gypo was ıplained of.

Ir. Gordon Hewart agreed.

Iis lordship said as a casing Gypo was e satisfactory for the girders, being out he way.

fter hearing a mass of evidence for the ndants and the speeches of counsel, is lordship gave judgment. He ded that the plaintiff properly mixed ze with the Gypo as a casing for the , and that they had properly carried out contract. He was of opinion that n the defendants made the contract were aware of the nature of this erial Gypo and knew of its limitations. He entered judgment for the plaintiff for £123 9s. 8d., which was said to be the sum remaining in dispute.

Action against Builders and Contractors: Alleged Nuisance from Noise and Vibration.

Maxim v. G. Godson and Sons.

January 15. Chancery Division. Before Mr. Justice Neville.

This was an action by Sir Hiram Stevens Maxim, the well-known inventor, to restrain the defendants, builders and contractors, of Pembroke Works, Kilburn Lane, from creating an alleged nuisance by noise and vibration. The defendants are erecting a fire-brigade station on land adjoining 383, Norwood Road, a house used by the plaintiff, chiefly for secretarial work. Plaintiff paid £1,475 for the lease of the premises.

Mr. Jenkins, K.C., and Mr. Mathold appeared for the plaintiff, and Mr. Paterson, K.C., and Mr. Galbraith for defendants.

Mr. Jenkins said that the house was occupied by Mr. and Mrs. Galvis and their two daughters, and the plaintiff complained that it had become unfit for habitation owing to the use by the defendants of a heavy mortar mill and brick crusher in the course of their work. He would not ask the plaintiff to speak about the noise, because he was very deaf as the result of injury to his ears from experimenting with guns.

Miss M. Galvis, who acts as secretary to the plaintiff and assists him with his experiments, gave evidence to the effect that when the mill and crusher were both working the house shook from top to bottom and the noise could be heard in every room; the vibration caused windows and doors to rattle, stopped the dining-room clock, jingled the ornaments, and cracked the walls. It was impossible to sit quiet or read in the house. She had been awakened from her sleep in the early morning by a violent shaking of the house.

Miss Moore said that the noise was so great that in the kitchen it was impossible to hear oneself speak, and when tradesmen called one could not hear what they said, but had to make them shout. Since the nuisance started she had suffered from frightful headaches, and as she could not do her work she had to consult a doctor. In her bedroom a great deal of plaster had fallen down owing to the vibration.

Mr. Howard Chatfeild Clarke said he visited the house on January 9 and placed a bath of mercury on the dining-room table. Omnibuses and trams passing brought no result, but directly the mortar mill started there was distinct vibration shown by the mercury, and he also felt it in his feet. Upstairs the vibration was greater.

Evidence was given by Messrs. Godson to the effect that no nuisance was created, and that the work was carried out with as little discomfort to the plaintiff as possible.

His lordship came to the conclusion that the plaintiff had made out his case that a nuisance existed, and he granted the plaintiff an injunction restraining the defendants from making an unreasonable use of their machinery, and ordered an inquiry as to the damage sustained.

COMPETITIONS.

Victoria Hospital, Burnley.

We illustrate below the selected design by Mr. William A. Pite, F.R.I.B.A., of London, for the new Victoria Hospital to be erected at Burnley. There were ten competitors out of twelve invited to submit designs. The assessor, Mr. H. Percy Adams, F.R.I.B.A., awarded the second place to Messrs. Hitchon and Pickup, of Burnley; the third to Messrs. Taylor and Simister, of Oldham; and the fourth place to Mr. T. H. Vowles, of Burnley.

Infants' School, Oldham.

Mr. J. H. Woodhouse, F.R.I.B.A., of Manchester, has made the following award in the competition for a new infants' school and domestic centre to be erected in Ward Street, Oldham:—1st (£15), F. Thorpe; 2nd (£10), T. Hilton; 3rd (£5), Taylor and Simister—all of Oldham, the competition having been restricted to local architects.

Rutherford College for Girls, Newcastle.

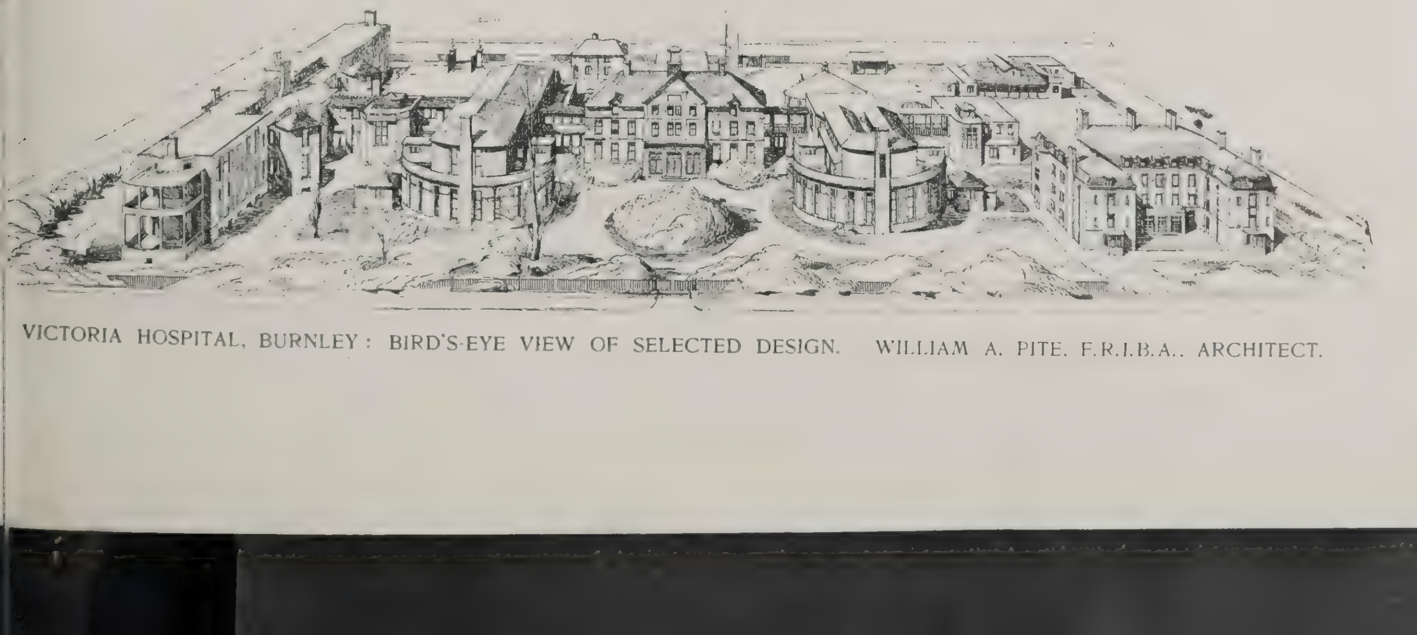
This competition (limited to six local firms of architects experienced in school designing) has been decided in favour of Messrs. Marshall and Tweedy, of Newcastle. Part of the scheme includes the erection of an assembly hall to accommodate 1,000 persons.

LIST OF COMPETITIONS OPEN.

February 8.—Workmen's Dwellings, City of Liverpool.—The Corporation of Liverpool invite designs for workmen's dwellings to accommodate about 500 persons, to be erected on the Rathbone Street area. Premiums of £100, £50, and £25 are offered, and the Council have appointed Mr. Henry Hartley, F.R.I.B.A., as assessor. Particulars (£1 1s., returnable) from Mr. Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool.

March 31.—Street Planning, Bradford.—The Corporation of Bradford invite competitive designs for the replanning of streets in the central area of the city. Mr. Reginald Blomfield, R.A., will act as assessor. Particulars (£1 1s., returnable) from Frederick Stevens, Town Clerk, Town Hall, Bradford.

April 30.—Grammar School, Leicester.—The Corporation invite designs for the new Wyggeston Grammar School for Boys to be erected on a site next Regent Road. Competition limited to architects practising in Leicester. Premiums, £100, £70, and £50. Assessor, Mr. George H. Widdows, F.R.I.B.A.



VICTORIA HOSPITAL, BURNLEY: BIRD'S-EYE VIEW OF SELECTED DESIGN. WILLIAM A. PITE, F.R.I.B.A., ARCHITECT.

VARALLO AND ITS IMITATIONS.

AT last week's meeting of the Royal Institute of British Architects Mr. F. C. Eden, M.A. Oxon., read a paper on "Varallo and Its Imitations." Mr. Eden pointed out that he had been asked to read a paper on ecclesiastical buildings of Northern Italy, but had confined himself to one corner of the field, namely, the district to the south of Monte Rosa and the Simplon, which, while not remarkable for the excellence of its ecclesiastical architecture, was rich in the interesting class of buildings known as sanctuaries. These were of every degree of architectural importance, ranging upwards from the tiny mountain shrine, rudely built and poorly furnished, at the bottom of the scale, through the modest church provided maybe with lodgings for a chaplain or a suite of rooms for the accommodation and refreshment of pilgrims, to the vast proportions of such an institution as Oropa, dominated by its enormous hospice. Others consisted of scattered chapels grouped round a monastery, or strung out along the way to a pilgrimage church, famed for the possession of a miraculous image or other venerated object. They were to be found in the most varied situations, on the very mountain top, on the verdant slopes of the foot-hills, and by the high road that skirts the valley. The most complex and interesting type of sanctuary was undoubtedly the Sacro Monte. This consists of a series of chapel-like buildings designed to protect and exhibit groups of life-sized statuary, provided with porticoes or other shelter for spectators, and so arranged as to be approached in a definite order. Of these

Varallo

was the most famous, both as the first thing of its kind, and on account of the great artists who participated in its production. At Varallo the whole of the Redemption story was displayed in more than forty groups of figures; at Orta the life of St. Francis was the theme; at Varese and Crea the XV. Mysteries of the Rosary; at Oropa the life of Our Lady; while Graglia, the grandest scheme of all, which, however, never came to completion, and was now ruinous, was to have included no fewer than a hundred scenes from the life of our Lord.

In spite of their variety, the planning of the chapels is of the simplest. Three systems have been followed. The very earliest was a simple rectangular chamber without any sort of barrier or division, so that the spectators actually passed through the show-space. There were obvious inconveniences to this arrangement, as witness the sixteenth-century names and dates still to be seen scribbled on the frescoed walls of the Crucifixion Chapel, and so the place for the spectators came to be railed off. The partition was effected by a screen or grille of carved wood, so designed as to allow an easy view of the ceiling and wall paintings, as well as the figures. Most of these screens are highly ornate and varied in design. In the latest examples the whole of the interior space is given up to the sculptures, and an external portico is added for the accommodation of the pilgrims. Both methods, the screen and the portico, are used at Orta, at Varese the latter only. The walls are of plastered rubble with granite dressings, and the roofs are covered with the heavy stone slabs which give such dignity and character to all the roofs in these upland valleys.

The climax of the whole composition is the piazza, with its two-storeyed cloister and circumjacent chapels, not the big church which strikes the only jarring note with its aggressive modern façade. At Varallo the chief artistic interest centres in the contents of the chapels, at Orta and Varese in the buildings themselves.

Orta.

The Sacro Monte of Orta occupies a wooded promontory overhanging the town and lake of that name. The same materials are employed here as at Varallo, namely, granite and plaster; but with the addition of a rusty green serpentine, which takes and retains the finest detail and is used for the smaller moulded members. The lay-out is less confused than at Varallo, and the chapels seem to have been placed so as to get the best effect from each separate building, rather than with an eye to picturesqueness of grouping.

The highest point of the Sacro Monte is occupied, as at Varallo, by the circular Chapel of the Stigmata. The plan is noteworthy, not only for its simplicity and inevitableness, but as the earliest example among these chapels of a circular temple surrounded by a portico, and as the model for much subsequent design both here and at Varese. But it has further claim upon our attention. Once this type of plan had been brought to the notice of the artists of the Renaissance by the study of classical antiquity, it seemed to inspire many of their dreams. The pictorial value of the grouping of columns and arches, the ever-changing lights upon carved colonnades gleaming against their shadowy background made an irresistible appeal. The difficulty was to find an excuse for such a building, some real use to which it could be put. For ordinary church building purposes a plan of this kind had been out of fashion for centuries and was now considered impractical. Certainly we find circular chapels of late date built on to existing churches, but when an entire round church, as S. Carlo at Milan, was erected, the ambulatory must needs be included in the building as an internal aisle, and so the chief exterior charm is lost. Hence it was that these artists had to be content with pictorial representations of such designs, introducing them as architectural backgrounds to their compositions, as Raphael did in his famous Sposalizio. But of outside pictures the only thing of the kind which had been attempted hitherto was Bramante's Tempietto, erected in the cloisters of S. Pietro in Montorio, in 1502, to mark the spot of S. Peter's crucifixion.

Having described some of the chapels of Orta in detail, Mr. Eden claimed for Cleto, the architect of the chapels there, that he was a pioneer. He broke what was in effect new ground. Architecturally the experience gained at Varallo can have been of but little use to him. By the year 1591, when he started work at Orta, only about half of the chapels of Varallo had been completed. Of these the majority, though picturesque and admirable in their way, are the unpretending work of village masons. The first and thirteenth alone can be described as architectural, and the former, though by an architect of repute, Alessi, is perhaps one of the least pleasing of all. Its only importance arises from its influence upon subsequent building design. The portico exhibits that combination of central arch with square-headed side openings which has come to be known, though its real originator was Brunelleschi in the
Pazzi Capel, as the Palladian moti
Certainly it was a favourite device w
the later architects of Northern Italy,
we may perhaps attribute its frequent
currence, both here and at Varese, to
lingering fame still attaching to Ales
name and work.

Oropa.

The great establishment in the mo
tains above Biella known as the Sanctu
of Oropa is the growth of sixteen centur
The buildings are on sloping ground at
head of a short, steep valley, some 4,00
above sea level. A grassy slope to the
of the main road just below the hos
is dotted with black and white chap
containing the usual terra-cotta gro
It is known that in 1659 these were twe
five in number, and in 1681, twenty-
but since there are now no more t
eighteen, most of them built about the
1690, it may be inferred that the ea
ones were of quite modest dimensions,
were suffered to fall into decay or
pulled down to make room for those
standing. The buildings of the hospice
planned round an immense quadra
two sides being prolonged southward
wings at either end of the entrance faç
The church, an unpretentious struct
most inconveniently small for the vast
course of pilgrims, juts out from the
side of the court. This is surrounde
a cloister walk, of two storeys for s
part of its circuit, and presents an unu
combination of the stately and the
turesque. Two architects were conne
with the work, Negro di Pralungo,
was engaged upon the quadrangle a
the same time that the erection of
church was proceeding, and the
famous Filippo Juvara, who complete
scheme in 1720, by the design of
southern or entrance front.

Discussion.

Mr. Paul Waterhouse, who said he
spent many a happy hour at Varallo
served that the whole spirit of the F
ciscan Order seemed to breathe in
delicate bits of work, which at first
might appear to be in contradiction t
severe teachings of the Order. It
been said that the introduction of the
naissance was antagonistic to the Ch
but nothing more futile had ever
written. The entire spirit of the Re
sance, in painting and architecture
was intimately consecrated to the pu
of religion, and nowhere was this
apparent than in these religious m
tains.

Mr. E. P. Warren said he had ha
advantage of seeing Varallo and Orta.
was impressed at Orta with the conf
of plan occasioned by the growth of
sands of trees and great bushes of
nolias, giving a picturesque setti
architecture. These imposing grou
coloured terra-cotta buildings, and th
traordinary exuberance of magnolia,
duced an effect unlike anything el
had ever seen.

Mr. Walter Tapper referred to th
mendous stock of interesting det
Varallo and the neighbouring places.

Mr. W. Curtis Green said he
Orta about two years ago. The
country side was rich in delightful
mountain sanctuaries. These pri
people had gone to work in the right
and had produced an agreeable art
thought that the contemplation of
work would inspire architects in thei
sent problems, of attempting to pr
pleasant work with simple materials

›CIETIES AND INSTITUTIONS.

How the War Affects Architects.

ıt the meeting of the Leicester and
cestershire Society of Architects held
January 15, the new president,
. Charles Kempson, A.R.I.B.A.,
.I.I.C.E., delivered an address on "The
ɜct of the War upon Architects." The
, he said, had affected their professional
k in many ways. It put in abeyance
the ordinary new schemes of building,
dered the scale of interest on borrowed
ıey higher, and practically stopped the
ply, banks preferring to reduce their
rdraft risks and to restrict and refuse
facilities. It was realised by anyone
templating building that his capital had
ered sufficiently to induce prudence.
lding societies had also raised their
s of interest and refused generally to
rtain any new proposals. The out-
ık of war was responsible for driving
ıt once the prices of metals and timber
ıe price of the latter having jumped up
ɔer cent.—whilst through men joining
colours builders found great difficulty
ompleting contracts. With regard to
high rate of war risks insurance he
red to express a very pious opinion.
uld any property on our shores or in
don which was already insured against
be destroyed by fire through adjacent
ɔerty being fired by a bomb, no insur-
could be claimed, the fire being an act
ar, and 5 per cent. was asked to cover
bomb risks—over three times the
l fire risk. This to him seemed very
bitant on the part of the insurance
panies. Architects were specially
ted, as the insurance money found the
ns of rebuilding. One might expect,
ıg to financial stringency, a shortening
he purse-strings in future building
mes. After the war crisis he believed
would be a great building boom, and
as to be hoped that such new work
ld be in harmony with the lines of suc-
ul development.

Painted Decoration.

ıe paper on painted decoration read
Ir. Arthur Hill, F.R.I.B.A., of Cork,
re the last meeting of the Architectural
ciation of Ireland, was considered
liarly appropriate at a time when
osals for decorating the interior of
City Hall of Dublin with frescoes
v the dome are under consideration.
Harry Allberry, A.R.I.B.A., president,
pied the chair. The lecturer, having
ed out that a sense of colour is in-
ıt in the human race, and that there
ery reason to believe that, in early
, the next step to building a dwelling
o paint it, referred to the rich colour-
employed by the Egyptians in their
s and temples, and to the painting by
reeks *in tempera* on panel, and also
ax known as the encaustic process.
Hill proceeded to deal with the work
e Christian period, and traced the
rial decoration of buildings through
vo main forms of mosaic and fresco
ing, the former waning as the latter
ne more popular. During the thir
h century painting well deserved the
of "the handmaid of architecture,"
ın immense field was opened up for
rtist. The four sides of even a plain
ngular room in a convent or a palace
treated with a complete scheme of
l decoration, glowing with colour and
with interest. Passing to later times,
ecturer, with the aid of numerous
n slides (some of which were speci-
lent for the occasion by the Art Institute of Chicago), explained the development of modern pictorial decoration, many interesting examples of recent work in France and the United States being exhibited. In the discussion that followed reference was made to the numerous opportunities existing in Dublin for the decoration of public buildings in a manner which has been so successfully adopted on the Continent and in America, where the public libraries and law courts are embellished with frescoes depicting historic events in the life of the nation.

Castle Howard.

On January 14, before the Sheffield Society of Architects and Surveyors, Mr. A. B. Burleigh, of York, delivered a lecture on "Castle Howard: Its History and Architectural Features and Its Artistic Treasures." The lecturer opened with very interesting theories as to the proper lighting of picture galleries, especially roof lighting, and spoke very highly of the arrangements in the galleries of Castle Howard. He dealt at length with the history of the family, and with the variety of Vanbrugh's genius, Vanbrugh being the designer alike of Castle Howard and Blenheim. He went into considerable detail respecting the plans of the famous Yorkshire mansion and its mausoleum, whose sheer magnificence made Horace Walpole declare that "it almost tempted him to be buried alive"! The paintings and other treasures were excellently described, the whole lecture being illustrated by views taken from photographs secured by the lecturer.

Iona Cathedral.

At the meeting of the Glasgow Royal Technical College, Architectural Craftsmen's Society, held on January 15, Mr. P. Macgregor Chalmers read a paper on "Iona Cathedral." The history of the church was traced from the time of its erection in the Early Christian era, and an account given of its partial destruction and restoration by monks. The lecturer stated his grounds for believing the site to be that of Saint Columba's original church in contradistinction to the views of Skene, the Scots historian. The object of the present restoration—which has been carried out under the direction of Mr. Chalmers—was explained, and many views of the building were exhibited.

ENQUIRIES ANSWERED.

Cement Stains on Brickwork.

J. L. P. writes: "I shall be glad if you can suggest a method of cleaning down blue brick piers built in cement. These piers have just been completed and are badly stained all over where the cement has run down, through being washed out from the joints by rain. A cheap but effective way of cleaning without injuring the face of the brickwork, or the cement joints, is desired."

—Brickwork which has become disfigured on the surface by lime or cement stains can be cleaned and renovated by washing with dilute solution of hydrochloric acid, which will form the deposited film into soluble lime salts, removed by washing and rinsing afterwards with abundance of warm water. This will not injure the bricks, and will only superficially affect the cement joints.

G.

Books on Graphic Statics.

T.M.M. (Aberdare) writes: "Please recommend an up-to-date book on graphic statics and stresses and strains."

—Recommendation of books where there is a large choice of manuals of about equal merit is an invidious task. It would be best for the inquirer to send to the publishers of technical works, such as Messrs. Batsford, Messrs. Spon, Messrs. Crosby Lockwood, etc., etc., for their catalogues, which usually state very definitely the character of the works listed. Works of recent date that might probably meet this correspondent's special requirements are "Practical Mathematics," by E. L. Bates and F. Charlesworth (3s. net; B. T. Batsford, 94, High Holborn); "Elementary Graphic Statics," by John T. Wight (4s. net; Whittaker and Co., 2, White Hart Street, Paternoster Square, E.C.); and "Theory and Practice in Designing," by Henry Adams (6s. net; Constable and Company, Ltd., 10, Orange Street, W.C.)

The Destruction of Louvain.

J.G.N. (Battersea) writes: "Although there has been much gossip about Louvain consequent on its destruction by the Germans, the facts regarding the buildings have not been clearly stated in any of the accounts that I have seen. Could you give a few definite particulars of the chief buildings involved?"

—In the special Louvain number of the "Architectural Review," published last November, all the principal buildings were sumptuously illustrated, and the letterpress contained all the particulars that an architect would be likely to require. Briefly summarised, they are as follows: Hôtel de Ville, 1448-1459 or 1463; architect, Mathieu de Layens, chief mason of Louvain. Restorations, 1626, 1828-1841. In 1849 the niches were filled with 282 statues. Height to main balustrade, 72 ft.; to top of turrets, 153 ft. Interior largely altered during eighteenth century. Council Chamber restored in style of fifteenth century. Gothic "Hall of Marriages" has ceiling and beams of fifteenth century, ornamented by Josse Beyaert. Fergusson regarded this building as "the most elaborately decorated piece of Gothic architecture in existence."

Church of St. Pierre, 1425-1497, Sulpice van Vorst, Jean Keldermans Mathieu de Layens (d. 1483), Jean de Messemakere, Henri van Everghem, and Alard du Hamel were the successive architects or master masons. Belfry destroyed in 1458, and rebuilt six years later. Josse Metsys designed three great spires, the central one to be 535 ft. high, and the side spires 430 ft. Metsys began the work in 1507, but in 1541 it was found that the foundations would not stand the weight, and a wooden flèche was substituted for the intended spire. In 1570 an earthquake shook down the belfry, the upper part of the tower was taken down, and in 1631 was added the octagonal lantern which the bombardment has destroyed. Interior greatly modified in eighteenth century, and wood screen (1488) restored in 1834, Organ by Jean Crimon, of Mons, 1556. Whole building restored 1871 and 1885. Length of church, 400 ft. · width, 90 ft.; height, 82 ft.

Other churches, and the University (the old Cloth Hall) are described and illustrated in the "Architectural Review," and very fine plates of the buildings involved are contained in the special publication entitled, "The Destruction of the Town of Louvain and the Cathedral of Reims," which may be had at the offices of this journal.

BOOK NOTICES.

"*The Master Builders' Handbook*, 1915."

This year's issue of the "Master Builders' Handbook," which is the official organ of the London Master Builders' Association (London: Technical Journals, Ltd., 27-29, Tothill Street, Westminster; price one shilling) is of special interest and importance as including the full text of the new working-rule agreements upon which the great London dispute was settled. The origin, progress, and determination of the dispute are authentically recorded in the annual report of the Association, and the conciliation proceedings of the year are officially summarised. Other valuable features are: a full list of officers and members revised up to date; a careful digest of the leading legal cases of the year; a history of the London Master Builders' Association; list of the officers of the Institute of Builders and of the National Federation of Building Trades Employers; a list of kindred institutions; trade memoranda and tables, with important additions; portraits of Mr. W. F. Wallis and Mr. F. G. Rice; and a useful diary. Altogether this is a most serviceable reference-book for the architect, builder, and builder's merchant.

The Manufacture of Bricks and Artificial Stones of Non-Plastic Materials.

Although, at the present rate of demand for bricks, the clayfields seem in no danger of immediate exhaustion, there must eventually come a time when clay will be generally scarce. It is well, therefore, that means have been found to make use of materials that are more abundant. Nor is it any prospective dearth of clay that has exercised the inventive minds of the contrivers of machinery for making bricks from non-plastic materials. There are in this country, but more especially in the colonies and other places abroad, large tracts of land that carry no clay, but provide in plenty certain substances which, with the aid of ingeniously devised machinery, can be converted into bricks or building-blocks without requiring the large coal-supplies that are necessary to brick-burning; and it is with such substances and such machinery that Mr. Searle deals in his very practical and instructive treatise. Many inquiries have been from time to time addressed to us respecting the materials and processes of manufacture of sand-lime bricks, which, largely in use on the Continent, are coming into favour in our own country, and this book conveys all the required information. It deals, also, with other materials that may be converted to the same use, such as slag, crushed rock, etc., and, with its copious illustrations and clear descriptions, is altogether a timely and valuable treatise.

It is fully illustrated, and the book is well got up as regards paper and printing; but we see no particular reason for the large size of the pages. Not that the book is inconvenient to handle; but the question of shelf-room is worth considering.

"Bricks and Artificial Stones of Non-Plastic Materials: their Manufacture and Uses." By Alfred B. Searle. Pages viii. + 150, 11⅛ in. by 9¼ in., price 8s. 6d. net. London: J. & A. Churchill, 7, Great Marlborough Street.

Modern Plumbing Practice.

The late Mr. J. Wright Clarke was a practical plumber who had mastered scientifically every detail of his craft, and who had, by incessant teaching and writing, acquired uncommon lucidity of exposition and expression. He wrote several minor text-books, many series of articles in the technical press, and delivered many courses of lectures on plumbing; and it was his ambition to use his unique experience and talents in a *magnum opus* which, while it was nearly complete at the time of his death, he did not live to see issue from the press. The manner and form of its production would have rejoiced him, for the get-up of Volume I. is worthy of the reputation of the house of Batsford, and the work, when complete, will, if, as there is no reason to doubt, the succeeding volumes bear out the promise of the first, take by right the very first place among the more considerable works on plumbing.

The first volume, although it is modestly described as "an account of practical lead-working and plumbers' materials, is much more than a mere introduction to plumbing practice. It opens with an elementary description of the metals used by plumbers, their origin, reduction, and manufacture into forms used by the trade, but does not take the intelligent plumber out of his depth; nor is the information given merely scientific and theoretical. It is eminently practical, lead-casting and lead-burning being treated with more thoroughness and completeness than in any previous treatise on plumbing.

Pipe-bending, a matter in which the average plumber is in considerable need of guidance, is explained on soundly technological lines, the setting-out of the necessary curves being demonstrated, graphically and verbally, in a special chapter; while two succeeding chapters expound the various methods of actual bending, the formation of elbows, etc. Jointmaking is another important subject that occupies several chapters; and other subjects dealt with in the same luminous and thoroughly practical manner are pipe-fixing, the fixing of bibcocks and ball-valves, the lining of cisterns and sinks with various metals, the formation of lead traps, the fixing of iron or copper pipes for hot water, covering and lining coffins with lead, leadlight glazing, syphon-action in plumbers' work, and many other subjects of which the mere catalogue would run to considerable length.

Mr. Wright Clarke had an uncommon aptitude for the elucidation of the scientific principles underlying the practice of plumbing, and in this respect his treatise will be useful not only to the practical plumber ambitious of basing his work upon sound and thorough knowledge, but will be, in a way, equally serviceable to the architect who aims at understanding *au fond* the operations which come under his supervision and control. To this work either may turn in full confidence that it will afford him the clearest possible information upon every detail about which he is at all likely to require information. The work is copiously illustrated, and has a good index.

"Modern Plumbing Practice." Vol. I.—An Account of Practical Leadworking and Plumbers' Materials. By J. Wright Clarke, M.R.S.I. With upwards of 400 illustrations from the author's drawings and from photographs. Pages xiv. + 284, 10¾ in. by 7¾ in., price 10s net. London: B. T. Batsford, Ltd., 94, High Holborn.

Gotch's "Early Renaissance Architecture in England."

What Mr. Gotch means by "Early Renaissance" in England he explains as being the development of style from the close of the Gothic period down to the advent of Inigo Jones. Treated with the author's fulness of knowledge and in his simple, definite, and direct style, the period is rich in intrinsic interest, besides affording indispensable groundwork for the study of modern English architect
as a whole. It leaves off where
Reginald Blomfield's "History of Ren
sance Architecture in England" virtu
begins, and so forms a more ample in
duction to the latter book than its au
could be reasonably expected to supply,
subject being Renaissance proper—the
orbed day as against the dawn-streak
the period covered by Mr. Gotch's b
Either is complementary to the other

It was not until the beginning of
sixteenth century that English archi
ture showed consciousness of the g
wave of impulse which had, nearl
hundred years before, suffused the re
Europe; and then, as Mr. Gotch ha
says, it was "coloured by the two chan
through which it came—France and
Netherlands." When our Henry V
piqued by the example of his rival Fr
the First of France, imported his first b
of Italian artists or artificers—fore
among them Torrigiano—he gave the
spirit its first tangible embodiment,
even in his day some of its feat
favoured the French, and after his d
the work inclined towards the D
version.

Whether French or Dutch in featu
complexion, Renaissance work in Eng
was for a long time inorganic, sho
itself in decoration rather than in cons
tion—in the moulding of terra-cotta
ments, or in the carving of stonewor
woodwork. As the substantive work
which the Italian decoration was gr
remained sturdily English, incongr
effects are pretty numerous. In the
vaulting of the porch at Cowdray
spandrils are filled with carving, som
it foliage in the late Gothic manner,
in two instances a winged cherub is i
duced, and it would no doubt be pos
to cite many instances of the mixtu
styles that was ultimately the undoi
Gothic, the parasite flourishing as
trunk decayed. That these Italian ca
were capable of great things is ev
from the unattributed rood scree
King's College, Cambridge, Mr.
agreeing that to call it "the finest pie
woodwork this side of the Alps"
exaggeration of praise.

Step by step the author traces—th
the Tudor, Elizabethan, and Jac
periods—the waning of the old trad
and the waxing of the new, in pla
and construction as well as in adorn
until finally we reach the stage at
Renaissance work in England arriv
adolescence; and it is the peculiar
of the author that he does not ask
take anything on trust. Vague theor
ingenious but unsupported speculatio
leaves to those writers on archite
history who find such mental exercise
arduous than the painstaking examin
and study of actual examples. Sear
the materials—and Mr. Gotch see
have exhausted the possibilities o
covery—and the patient exaction
them of every particle of significanc
each detail could yield to wide know
and keen insight must have oc
very much more time and labour tha
actual writing of the book, which,
sound and solid contribution to ar
tural history, a credit alike to its
and its publishers, had already in it
edition taken rank as a standard
covering a field that Mr. Gotch has
peculiarly his own.

"Early Renaissance Architecture in Engla
Historical and Descriptive Account of the
Elizabethan. and Jacobean Periods, 1500-1625."
Alfred Gotch, F.S.A., F.R.I.B.A. Second
revised. With over 300 illustrations from phot
and drawings. Pages xx. + 320, 6¼ in. by
price 15s. net. London: B. T. Batsford, L
High Holborn.

FIRE-RESISTING BUILDING BOARDS.

NE of the immediate consequences of the mobilisation for war was a sudden and an enormous demand for quick building. Military huts in
ısands had to be constructed with the utmost rapidity,
no imaginative effort was necessary to the perception
temporary hospitals were a more grim and a scarcely
urgent need of the situation.

or quick building, the prime requisite is that the
erials of construction shall be light, portable, and
ptable—easy of conveyance to the site, easily handled
cut to shape and measurement, and offering no dif-
ty in handling and fixing by unskilled labour. Withal
must possess certain intrinsic qualities that are
spensable for an efficient result.

rominent among the materials that fulfil all these con-
ons is "Calno Board," of which more than five million
ıre feet has been adopted by the War Office for use
he construction of huts and shelters at Purfleet,
erham, and elsewhere.

Calno" is a composition board, of which the basic
erial is a special fibre chemically treated to render it
resisting, the fire-resisting solution being applied
ng the process of manufacture. When thoroughly
regnated with this solution the fibres are brought to a
ogeneous state by the addition of a mineral cement
ch acts as an effective "binder." The product of
e and subsequent processes is a sheet or board
xcellent finish and capable of being used decoratively
ell as structurally, for panelling as well as plain linings
partitions. The material lends itself readily to grain-
painting, or distempering, and its finely finished sur-
can be easily made to present the effect of ash, oak,
ogany, enamelled whitewood, rosewood, or walnut;
f course, it could be marbled, or be made to assume
required decorative appearance. In this respect it is
excellent resource where—as in hotels, restaurants,
tres, picture palaces—inexpensive but effective
ration is demanded. Its lightness in handling—the
dard thickness is about 3-16 in., while that of the
ous grades of panel boards is about ⅜ in., ⅝ in., or ⅞ in.
akes it particularly appropriate for the lining of
ngs, as well as for many positions to which lath-and-
ter work is inapplicable, or occasionally impossible.
the same time, its tensile strength of more than
lbs. to the square inch makes it a reliable and durable
erial of construction.

is, indeed, as a cheap, convenient, and thoroughly
ctive substitute for lath-and-plaster, that "Calno"
introduced. It is applicable to all the services of
-and-plaster, as well as to others in which lathing is
acticable. Admirably adapted for panelling, dadoes,
itions, ceilings, and for every purpose of interior
g or boarding, the "Calno Boards" offer an important
ntage that has been recently brought into consider-
prominence. Street traffic has of recent years become
xtraordinarily heavy as to create a fresh set of pro-
ns for the architect, among them being that of the in-
ility of plaster ceilings. A notable example was that of
ool in Kent, of which the ceiling was shaken down by the vibration from heavy street traffic. Private houses in great numbers all over the country have suffered in the same way, and, at home and abroad, especially in Paris, plaster has been shaken down wholesale by the vibration from underground railways. These dangers are entirely obviated by the use of "Calno Boards," which are unaffected by vibration.

Moreover, the nature of the material and the quality of its finish enable it to resist both damp and fire, and render it both germ-proof and fire-resisting, and it is also an excellent non-conductor of heat and cold. It is essentially a hygienic material, and is therefore eminently suitable for use in hospitals and sanatoria, as well as in public buildings generally, in cottages, bungalows, stables, motor houses, steamships, railway-carriages, and for many other services which will readily suggest themselves to the architect, builder, and property-owner.

Its merits do not rest on the claims of its manufacturers, nor is it a new material called into existence to meet the emergencies of mobilisation. Its use was approved by the London County Council at the important Printing Trades Exhibition held at the Royal Agricultural Hall, Islington, last May; and its use there and at other important exhibitions has brought forth some very striking testimonials, in which particular reference is made to the ease and rapidity with which it can be sawn or cut and fixed to fit any shape or space; to the fact that it can be fixed or removed without fuss or mess; and to the equally important merit that it does not split or crack in the nailing.

As to the fire-resistance of "Calno Boards" two certificates of severe tests have been issued by the British Fire Prevention Committee, who publish a full account of the tests in their Red Book No. 192. As a result of the more formal of these tests, "Calno Boards" have been accorded classification under the "Universal Standards" in Class A. This classification is only accorded to partitioning material after the Committee's official test of 45 minutes' duration at temperatures reaching at least about 1,500 degrees Fahr., followed by the application of water from a steam fire-engine for two minutes, and in this test the maximum temperature reached was 1,660 Fahr. In a further test, to ascertain the resistance of the material to fire, a "Calno Board" a quarter of an inch thick resisted fire for eighteen minutes, the maximum temperature being about 1,137 degrees Fahr. These very severe tests establish beyond question the fire-resisting qualities of "Calno Boards," which are made in such convenient sizes as 4 ft. 6 in. by 8 ft., 9 ft., 10 ft., and 12 ft., the panel boards being of sizes up to 4 ft. 6 in. square.

They are British made, being manufactured by the Thames Mills, Purfleet, Essex, whence samples of these "Calno" fire-resisting fibre building boards, with detailed information as to fixing, and all necessary particulars, will be gladly supplied to all *bonâ-fide* applicants, whose inquiries and requirements, ordinary or special, will in every instance receive prompt and courteous attention.

NEWS ITEMS.

Sailors' and Soldiers' Home, Edinburgh.

New premises for the Sailors' and Soldiers' Home at Edinburgh have been erected in East Register Street at a cost of £20,000, from designs by Messrs. J. N. Scott and A. Lorne Campbell, F.R.I.B.A., of Edinburgh.

War Memorials.

A mural tablet is proposed to be erected in York Minster to the memory of the late Admiral Sir Christopher Cradock, who was lost in the naval fight off Chili, and the Mayor of Lyme Regis has opened a fund for a memorial to the crew of the Formidable, to take the form of a headstone over the grave of the six victims of the disaster who were buried in the cemetery at Lyme Regis.

Old Southwark Bridge.

In connection with the demolition of the piers of Southwark Bridge, the old foundation-stone has been discovered. The inscription states that the stone was laid in 1815 in the reign of George III. and the Regency of George, Prince of Wales. An interesting part of the inscription is the statement that the work was commenced at the glorious termination of the longest and most expensive war in which the nation had ever been engaged.

Builders' Section of Special Constables.

At the last meeting of the Hull Master Builders' Association, Mr. John Watson, J.P., spoke of the proposal to form a section of the Civic Guard consisting of builders and their workmen who would, if necessary, undertake the duties of demolishing or loopholing buildings for military requirements. The suggestion was heartily approved by the meeting, and a considerable number of names were handed in for enrolment.

Engineers' and Architects' Offers to the War Office.

The Secretary of the War Office announces that owing to the very great number of offers of assistance and applications for employment received from Civil and mechanical engineers, architects, and surveyors, it has been found impossible to acknowledge letters individually. Should an opportunity arise for utilising the services of any of the applicants, they will be communicated with, but the number of applications received far exceed the probable requirements.

Distinctions in the R.I.B.A Examinations.

In connection with the recent final and special examinations of the Royal Institute of British Architects, Mr. Patrick Abercrombie, of Liverpool University, was awarded the Mark of Distinction for his thesis on "The Development of the Plan and Architectural Character of three European Capitals—Paris, Vienna, and Brussels," and, as already announced in our columns, the Ashpitel Prize was awarded to Mr. G. E. Francis, of Sydenham, he being the candidate who most highly distinguished himself in the examinations held during 1914.

New Newcastle School.

The Cambridge Street Council School, the latest and one of the largest to be erected by the Education Committee of the Newcastle City Council, was opened last week. The building, which has been erected from the designs of Mr. J. H. Morton, F.R.I.B.A., of Newcastle, is of three storeys, accommodating 1,200 scholars, sub-divided into infants, junior, and senior mixed departments. In addition a handicraft room for boys, and a domestic science room for girls, are provided. A novel feature of the school is a roof playground, the first to be erected in Newcastle. The contractors for the school were Messrs. S. Sheriff and Sons, of South Shields.

New Bank at Bath.

The premises of the Union of London and Smiths Bank, Limited, at Bath, have been rebuilt from designs by Messrs. Dunn, Watson and Curtis Green, of London, the general contractors being Messrs. Langdale, Hallett and Company, of London, S.W.

Holy Trinity Church Tower, Coventry.

Sir T. G. Jackson, R.A., having carefully examined the structure, has prepared a report on the condition of the tower of Holy Trinity Church, Coventry. He states that the masonry is in such a decayed condition as to need entire refacing, the cost of which he estimates at £6,000.

Orvieto Cathedral Damaged by Earthquake.

The Rome correspondent of the "Times" states that the façade of Orvieto Cathedral has been damaged by the earthquake. This building is regarded as one of the most interesting buildings in Italy. All the best artists of the day were engaged in its embellishment, and the façade, begun in 1310 according to the plans of Lorenzo Maitani, of Siena, is perhaps the largest and most gorgeous polychrome work in the world.

Scarborough's Damaged Churches.

The Ven. C. C. Mackarness, Archdeacon of the East Riding and Vicar of St. Martin's, Scarborough, is appealing for funds to repair the churches in Scarborough which were damaged in the recent raid. The Parish Church of St. Mary and the churches of St. Martin, All Saints', and St. Columba were struck with shells—in the case of All Saints' with such severity that services cannot now be held in the building. The total cost of repair will probably fall little short of £1,000. St. Martin's and All Saints' were designed by the late Mr. G. F. Bodley.

Scottish Building Trades Conference.

On January 18, at Edinburgh, Sir George Askwith presided at a conference of architects, surveyors, representatives of the Scottish National Building Trades Federation, and other allied trades, when consideration was given to modes of measurement, and a discussion took place, particularly in regard to preliminary rules for universal application to all trades throughout Scotland. Further meetings will be held to establish modes of measurement for joiner work, and in due course also for other trades.

New Cold Store and Warehouse at Avonmouth.

A new cold store and general warehouse is to be erected at Avonmouth on the east wharf of the Royal Edward Dock. The building will comprise seven floors, each 215 ft. by 105 ft. in area, and will be 100 ft. in height. It is proposed in the first instance to insulate the three upper floors for frozen produce, to utilise the three lower floors for the storage of general goods, and to adapt the fourth floor for sorting, handling, surveying, and weighing. The cubical capacity of the portion to be insulated in the first instance will treble the cold storage accommodation at the docks.

OBITUARY.

Mr. J. B. Bailey.

Mr. Joseph Booth Bailey, a well-kno
Keighley, architect, died last week, a
sixty-eight. Among the buildings desig
by him are the churches of All Sain
Holy Trinity, and St. Paul's, Keigh
and St. James' Church, Cross Roads;
Keighley Temperance Institute, the Kei
ley Girls' Grammar School extension,
Silsden Mechanics' Institute (with
W. H. Sugden). His firm had also b
identified with the erection of a good
of mill property in Keighley and distric

COMING EVENTS.

Wednesday, January 27.

National Federation of Building Tra
Employers Annual General Meeti
Throne Room, Holborn Restaur
10.30 a.m.

Carpenters' Company—Mr. Aymer
lance, M.A., F.S.A., on "
Bridges," Carpenters' Hall, Lon
Wall, E.C., at 7.45 p.m.

Thursday, January 28.

London University—M. Camille Pou
on "Belgian Sculpture," Univer
College, Gower Street, W.C.,
5.30 p.m.

Friday, January 29.

Leicester and Leicestershire Society
Architects—Mr. C. E. Hill on "
Renaissance of Cambridge."

Glasgow Royal Technical College Ar
tectural Craftsmen's Society—
James Telfer on "Lighting."

Monday, February 1.

Society of Engineers—Presidential
dress by Mr. Norman Scorgie,
7.30 p.m.

Wednesday, February 3.

Carpenters' Company—Mr. W. H. An
A.R.I.B.A., on "Flemish Civic Bu
ings," Carpenters' Hall, London W
E.C., at 7.45 p.m.

Thursday, February 4.

London University—M. Camille Pou
on "Belgian Painting," Univer
College, Gower Street, W.C.,
5.30 p.m.

Friday, February 5.

Birmingham Architectural Associati
Mr. Lawrence Weaver on "
History of Garden Design in E
land."

Aberdeen Architectural Association—
James Lowson on "The Buildin
the New Railway Station at A
deen."

Monday, February 8.

Bristol Society of Architects—
W. H. A. Masters on "Some Cots
Houses."

Wednesday, February 10.

Carpenters' Company—Mr. H. J. L
Massé, M.A., on "William Morri
a Craftsman," Carpenters' Hall,
don Wall, at 7.45 p.m.

Thursday, February 11.

London University—M. Camille Pou
on "Belgian Painting," Unive
College, Gower Street, W.C.,
5.30 p.m.

Friday, February 12.

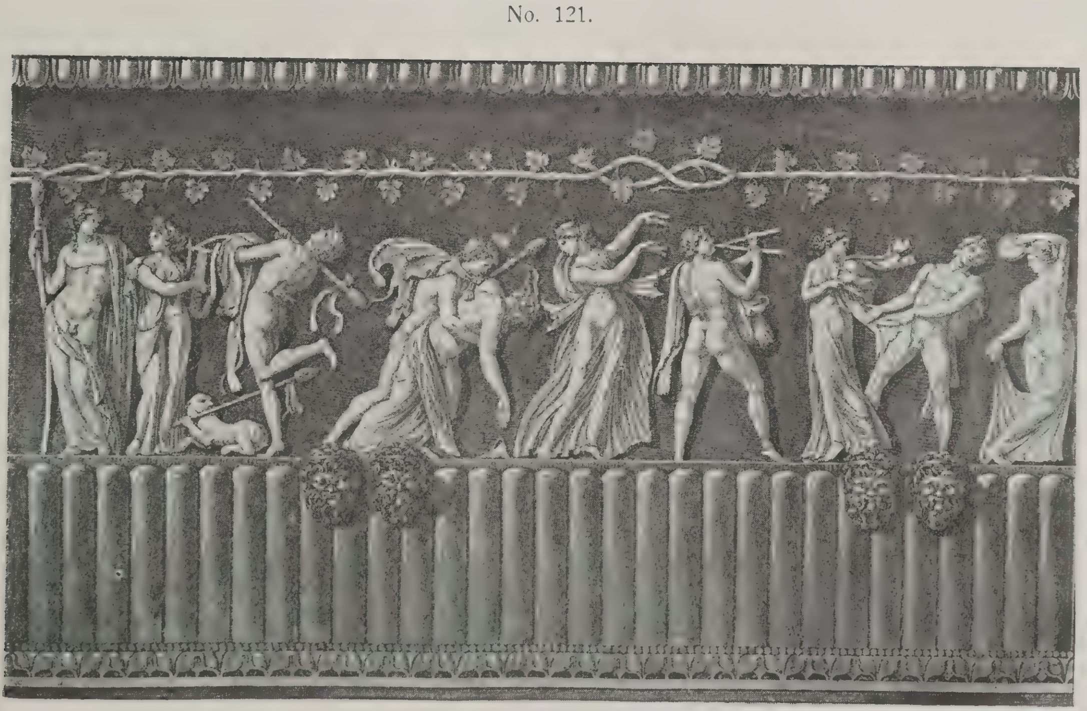
Glasgow Technical College Architect
Craftsmen's Society—Mr. James
Boyd on "Stereotomy."

Leicester and Leicestershire Society
Architects—Mr. F. C. Pulsford
"The Architect and the Hea
Problem."

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, February 3, 1915. Volume XLI. No. 1048.

No. 121.



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 3, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1048.

EDITORIAL.

ROBUSTIOUS, hard-hitting patriotism that gives the false foe no quarter is always heartening. As a counterpoise to the other extreme, it helps to keep the balance level. An instance at the R.I.B.A. kept it so exactly level that there were ten aside on the proposition that seven Austrians and Hungarians, and eight Germans, "now enemies of the King," should have their names removed from the list of members of the Institute. It was suggested that the President should declare "No order," but he preferred to exercise his right to record his casting vote. It cannot be said of him that, like Brennus, he cast his heavy sword into the scale and cried, "*Væ victis!*" it was rather with an olive-branch that he gently disturbed the balance. He voted for the amendment, "That as our membership is for the general advancement of Civil Architecture and the mutual recognition of those interested or distinguished therein, it is beneath the dignity of this Institute to strike off the names of members because our nation and theirs are unhappily at war."

* * * *

His courage in declining the shelter of the Cave of Adullam must extort admiration from those, even, who disapprove of his action, and who do not share his expressed view that "Germany would awake as from a horrible dream when once this militarism, which was really foreign to its character as a nation, was finally crushed." For the sake of humanity, we should like to think that this large and tolerant view is correct; but, remembering Belgium and Scarborough and Yarmouth, to say nothing of Baron Münchausen and the Wolff Bureau, Nietsche and Bernhardi, and the egregious Von Reventlow, we are for the moment more strongly disposed to agree with M. Maurice Maeterlinck's opinion that the German people, who are just now piously teaching their children to lisp the "Hymn of Hate" against Britain, must be held to be fully responsible for the bloody-mindedness of their rulers. That militarism is "foreign to the German character" is simply impossible of belief. Nevertheless, the Institute would have done wisely to leave them to wallow in it, and we cannot help thinking that both the motion and the President's action upon it were equally unnecessary. While we admire in a way the ultra-patriotism of the one and the ultra-chivalry of the other (but only for their abstract qualities), we cannot help regretting that the incident arose.

* * * *

Some of the arguments put forward in the course of the debate were curiously feeble. One speaker urged that "the gentlemen referred to had had no more to do with the war than had members of the Institute." Referring to the list, we find that four or five of the Germans, and nearly all the Austro-Hungarians, hold official or Government-controlled positions—Stadtbaurat, Hof-baurat, or professor at some royal techni-
cal school or university; and they must be vastly unlik
the general run of Austrian and German professors
they are free from the vice of militarism. One
them, by the way—Dr. Dörpfeld—is a Royal Go
Medallist. Another speaker said that "for aught th
Institute knew, these enemy members might be pr
testing in the strongest possible fashion against wh
had been done." *Sanctissima simplicitas!* Has
not heard what happens in Germany to man, woma
or child that dares to criticise the exalted actions of t
all-highest? A German official thinks and speaks
order, and he does it very thoroughly; for, as Colerid
observed some seventy years ago, "there is a nimie
—a too-muchness—about all Germans." They wou
be astonished, if not scandalised, at the sweet thin
said about them at the Institute, where the best a
most dignified policy would have been to leave the
severely alone.

* * * *

That course, however, would certainly ha
deprived us of the engaging futilities unavoidable i
discussion of so elusive a theme—of the her
attempts, for example, to place the very human Ins
tute and the enemy architects in a serene atmosphe
of philosophic detachment. "This," said one gent
man, "was an Institute which watched over archit
ture, and as such it was only interested in architectu
societies and industries in Germany. It was not th
province to look after national questions; and the
was no evidence that the architects of Germany w
responsible for the atrocities that had been committe
Yet one seems to have heard rumours of an Archite
War Committee, and of the splendid success of
Architectural Association as a recruiting agency. I
true that, so far as we are aware, none of the ene
members has been caught red-handed in the very
of butchering women in Belgium, or of dropping bo
on babies' beds in Scarborough; but the present is
time for making wire-drawn distinctions betw
academic functions, moral obligations, and natio
feeling, nor for whitewashing the enemy in any w
And since the debate served no better purpose, i
a pity that it occurred: for it was thrice unblessed—
its inception, its course, and its conclusion.

* * * *

A very nice point in the ethics of restoration ar
with respect to the proposed treatment of the roo
Westminster Hall. Somewhat late in the day, s
Mr. Baines's scheme was long ago accepted, and, as
timber screens visible outside the roof suggest
actually in operation—Mr. W. D. Caröe lodges a
test against the use of steel, which, he apprehends,
rob the roof of its glory as an honest piece of carpen
He believes that the steelwork is unnecess
Sir Aston Webb and Mr. Reginald Blomfield, howe
oppose to this view the statement of fact that s

ie ago, when they examined the roof, they found it
y extensively decayed—apparently past repair as a
ber structure—and on this point their opinion
uld be decisive. Purists may therefore hold that
that remains is a choice of evils—the complete
onstruction of the roof, or its survival as a mere
ulacrum. They should be glad, for it has given
m a new and chronic grievance to nurse. Not that
asions for this agreeable and healthy exercise were
nting; but this is an exceptionally fine opportunity
head-shaking.

* * * *

s anything known of the designer of the West-
ister Hall roof? His name is sometimes given as
nry Zeneley, and he is said to have constructed it, in
4-9, for Richard the Second, who then had the walls
the hall heightened by two feet, and the windows
red, thus giving the hall a somewhat different
earance from that which it wore when William
us held his first Court within it in 1099. It has been
jectured that William of Wykeham had a hand in
building of the north porch and window. It was
e believed that the roof had the biggest span of any
urope, but certain Italian examples exceeded it.
ginally the roof was covered with lead, but slates
e substituted to relieve the weight; and the wood-
k was very extensively repaired in 1820-21, when
y loads of oak, from old ships broken up in Ports-
ith Dockyard, were used in renewing decayed parts
in completing a portion at the north end which had
n left unfinished. In 1851, the principals were
ngthened by the addition of tension-rods.

* * * *

rom these data it is apparent that the anti-restorers
e less substantial reason for their outcry than they
perhaps imagined. Already, from their point of
v, the roof, or a considerable portion of it, is but
e better than a sham antique; but if they are really
cerned with the spirit rather than with the substance
he work, they must surely agree that the scheme
ch has been adopted admits of the preservation of
maximum amount of the old wood, by relieving
n stress much that otherwise must have been taken
y, including some of the most interesting examples
arly wood-carving extant. These could have been
ely copied in new wood, no doubt, but in the process
would have lost all their spirit. With Mr. Caröe
greatly regret the introduction of steelwork, but,
ke him, we feel that it offers the surest means of
erving at least the outward semblance and the
eral conformation of one of the most remarkable
er roofs in existence.

* * * *

t the annual general meeting of the National
eration of Building Trades Employers of Great
ain and Ireland, which was held last Wednesday at
Holborn Restaurant, and of which a report appears
where in the present issue, Mr. A. W. Sinclair, of
borough, was elected president in succession to Mr.
Thomas, of Cardiff, who has had a no less particu-
strenuous year of office than has fallen to the lot
ther presidents whose term has happened to coin-
with the outbreak of the great war and the extra-
nary conditions which it has created. But for the
iliarly efficacious system upon which the presidents
ie Federation are elected, it might, in the extraordi-
circumstances, have been advisable to re-elect the
oing president; but the Federation always has in
rve a senior vice-president and a junior vice-
ident, who move up automatically, subject, of
se, to the formality of the annual elections. These
lemen are as well versed in the business of the
eration as the president himself, and the officer
succeeds him is always one who, having served a
apprenticeship to Federation affairs, and having
closely in touch with them up to the moment of
assuming control, is fully qualified by experience to carry on the work. Of the new President, Mr. A. W. Sinclair, it may be confidently said that no one has been more diligent and zealous in studying and promoting the interests of the Federation, to which for many years he has rendered devoted service in the several offices that lead up to the presidential chair, which he will certainly occupy with efficiency and distinction.

* * * *

One recommendation of integral sculpture is the rather marked tendency of independent statues to vagrom roving. No doubt this propensity has its advantages; for are we not all acquainted with statues that ought to be moved on by the police? Not that they are morally obscene in the conventional sense. It is only in virtue of their griminess that (if we may borrow an expression from the early divines) they "fill the mind with unclean images." Most of them are only too puritanically correct. For example, the effigy of the late Sir Sydney Hedley Waterlow, in Westminster, wears an overcoat, and, in the language of heraldry, is "habited and accoutred proper," down to his very umbrella.

* * * *

Generally speaking, the reasons for removing a statue are overwhelming. Naturally they are by no means equilibrated exactly by the desire to receive it elsewhere, some statues going hence to be seen no more, nobody feeling any very acute sense of bereavement. One reason is as good as another for getting rid of the average statue, and it is not often that the notice to quit takes so elaborate a form as that which has been successfully applied in the instance of Foley's statue to Sidney Herbert, which now stands in the Quadrangle at the War Office, but is under marching orders, having been detailed to serve in the detachment of Crimean veterans that is being assembled in Waterloo Place.

* * * *

Sidney Herbert it was who encouraged Florence Nightingale to undertake her great work in the Crimea, and in 1912 a commission was given to Mr. A. G. Walker to make a statue of her. Then arose the problem of where to put it. Why not near the Guards' Memorial, and why not bring the statue of Sidney Herbert to keep it company? If only one could be sure that here logic is less antagonistic to æsthetics than is commonly made to appear, this arrangement would be ideal. But the scheme, as described in the newspapers, is not altogether reassuring on this point. It has been found necessary to remove the Guards' Memorial 40 ft. near to Regent Street, and the statue of Sidney Herbert, and that of Miss Nightingale are to occupy part of the old site of the memorial, and are to stand side by side in "open order," 9 ft. apart; so that, we are told, the whole group will take roughly a triangular form, facing the line of Pall Mall. With its triangle and its facing of lines, this description sounds too military and mathematical to give much hope of artistically successful grouping. We shall see. But no one will begrudge Miss Nightingale her statue. If we must have outdoor effigies, stationary or peripatetic, noble women should be more frequently commemorated.

* * * *

It has been pointed out to us that the plans illustrating Mr. R. W. Collier's article on "House Planning in Relation to Furniture and Fittings," on p. 30 of our issue for January 20, must have been intended by the author as examples of "how not to do it." They were. It will be noticed that they carefully embody all the defects that Mr. Collier condemns; and, in justice to him, it must be stated that he is not responsible for the inscription, "Suggested Plans." Their true character, however, is immediately obvious on examination. Nevertheless, this explanation is due to the author.

HERE AND THERE.

MR. HILAIRE BELLOC, I notice, is to read a paper before the Architectural Association on March 22 dealing with "The Changes in the Conception of Artificial Permanent Defence, including those indicated by the Present Campaign." Whoever was responsible for arranging this is heartily to be congratulated, for we may be sure that so keen a mind as Mr. Belloc's will present the subject in a vividly interesting way. It is, moreover, a decided event for an architectural society to get a prominent layman into their professional haunts. We all know pretty well what most of the brethren think about the customary topics, and as a consequence the architectural lecture has few surprises for us, and the personal interest that is lacking explains perhaps the absence of members, who are content with reading the reports in the professional journals. But Mr. Belloc's case is sure to be different, and I have no doubt the A.A. will find themselves hard pressed for accommodation on the night. Generally speaking, it is the papers on subjects like the planning of libraries, the construction of hospitals, and kindred practical matters, that attract the big audience; many a crowded meeting at the Institute do I remember when topics like these were being discussed, and biggest of all a meeting when an attractive book was being given away! But the well-known personage is an undoubted attraction, as witness the tightly packed crowd at the Town Planning Conference when Lord Kitchener took the chair. And for that reason the securing of Mr. Belloc at the A.A. is warmly to be commended. The next move would be to get Mr. Shaw there; he would have a lot of Shavian things to tell architects; or Mr. H. G. Wells might be induced to follow Mr. Belloc's lead. Failing these, however, we have always in Professor Lethaby a man who can put forward new ideas about old things. Only last week he was the breezy protagonist in a discussion on modern German architecture at the A.A., when he reminded us that in architecture we were getting too much of the billiard-room and the golf-house, and not enough of steady concentration on the large issues.

* * * *

But to return to Mr. Belloc. He is to deal, presumably, with the present position of the architectural art of fortifications, a subject which I will not endeavour to enlarge upon here. In connection with it, however, it is opportune to recall that the architect in the past has had a goodly share in the making of places of defence, albeit his position is now taken by another person, the Royal Engineer. In Western Europe the Normans were the first people to build castles, and we may take it for certain that the architect was required to be concerned primarily with making his bastions and his keeps thoroughly sound and serviceable for purposes of defence, whatever might be the inconveniences to domestic life within; and that this was a matter of progressive science we may infer from the following note in Mr. Harvey's book on "The Castles and Walled Towns of England": "Of at least equal importance," he says, "in the development of the castle was the progressive improvement in the art of siege-craft, which was always counterbalanced by improved fortification, for all through the mediæval period the art of defence was in front of that of attack, and even the invention of gunpowder did not, for a long time, alter the relation." (What a difference in the present area of battle, when a gun has been contrived to throw so monstrous a shell that no existing fortifications can withstand the force of the explosion!) "During the earlier Norman period the inmates had chiefly to fear surprise, fire, and perhaps treachery. Against storm and fire the passive strength of the massive keep, whether rectangular or cylindrical, with its basement almost solid, and its well-guarded door, fifteen or twenty feet above the external level, was
almost ideal; and its ramifying passages and puzzlir
staircases afforded some protection against treache
within. . . . When, however, formal sieges
trained troops began to form a feature in warfare, t
weak points in the existing system of fortificati
became manifest. In England this was in the days
Stephen, the history of whose reign is one long sto
of the varying fortunes of castles. Then first was t
art of siege-craft, as it was understood on the Con
nent, introduced in this country, and the attack co
ducted formally and systematically by artille
engineering, and blockade. . . ."

* * * *

At this point we may jump back a thousand years,
the Romans, among whom, if we are to belie
Vitruvius, the architect was pre-eminently the man
the moment when fortifications were required. A n
translation of the celebrated ten books, by the la
Professor Morgan, of Harvard, has just been publish
and the clearness of the text makes it a pleasure
follow the author in his large dissertations as well
in his detailed particulars of such varied matters
harmonics in the theatre, the phases of the moon,
slaking of lime for stucco, and, most importa
of all, the construction of catapults, ballistæ, tortois
and other engines of warfare. Says Gibbon, writing
the Roman armies, in that "Decline and Fall" wh
unrelieved ponderosity is calculated to depress
gayest heart: "Besides their arms, which the legi
aries scarcely considered as an encumbrance, they w
laden with their kitchen furniture, the instruments
fortification, and the provision of many days. Un
this weight, which would oppress the delicacy o
modern soldier, they were trained by a regular step
advance, in about six hours, nearly twenty miles.
the appearance of an enemy, they threw aside th
baggage, and by easy and rapid evolutions conver
the column of march into an order of battle.
slingers and archers skirmished in the front;
auxiliaries formed the first line, and were seconded
sustained by the strength of the legions; the cava
covered the flanks, and the military engines w
placed in the rear." It is these last that Vitruv
describes in such detail, and that his interest in milit
fortifications and machines was not singular among
architects of his day we may infer from the accoun
gives of Diognetus and Callias. "For Diognetus
a Rhodian architect, to whom, as an honour,
granted out of the public treasury a fixed annual
ment commensurate with the dignity of his art. At
time an architect from Aradus, Callias by name, com
to Rhodes, gave a public lecture, and showed a m
of a wall, over which he set a machine on a revolv
crane with which he seized an helepolis as
approached the fortifications, and brought it in
the wall. The Rhodians, when they had seen
model, were filled with admiration, and took f
Diognetus the yearly grant and transferred this hon
to Callias. Meanwhile, King Demetrius, who bec
of his stubborn courage was called Poliocetes, mak
war on Rhodes, brought with him a famous Athe
architect named Epimachus"—of whose achieven
in the matter of constructing an helepolis (or mov
fighting tower) 135 ft. high and 60 ft. wide, w
licked creation, as the Romans knew it, I have not s
here to speak, nor of the subsequent machine dev
by Diognetus, who, persuaded by "free-born maid
young men, and priests," overlooked the affront he
suffered at their hands, and helped the Rhodians o
their difficulties: but sufficient has been said to s
that the Roman architect was a right-hand man t
Roman general, and were the case the same to-da
should find Mr. Blomfield at headquarters on the
of France, busy with all manner of military arch
ture, and Mr. Newton engrossed with the means of
trenching the trenchers. But these things are not.

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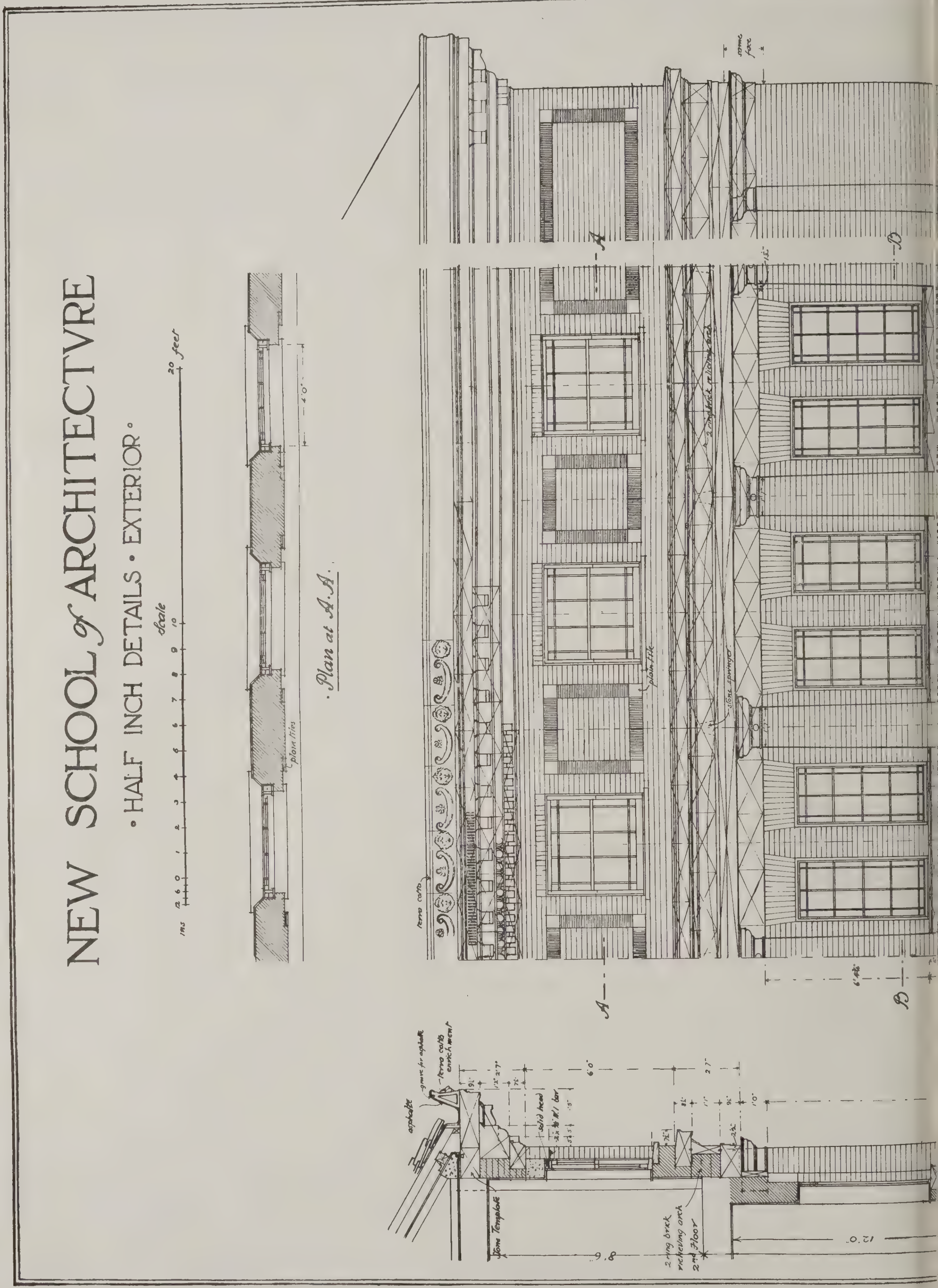
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• HALF INCH DETAILS • EXTERIOR •
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Plan at A.A.
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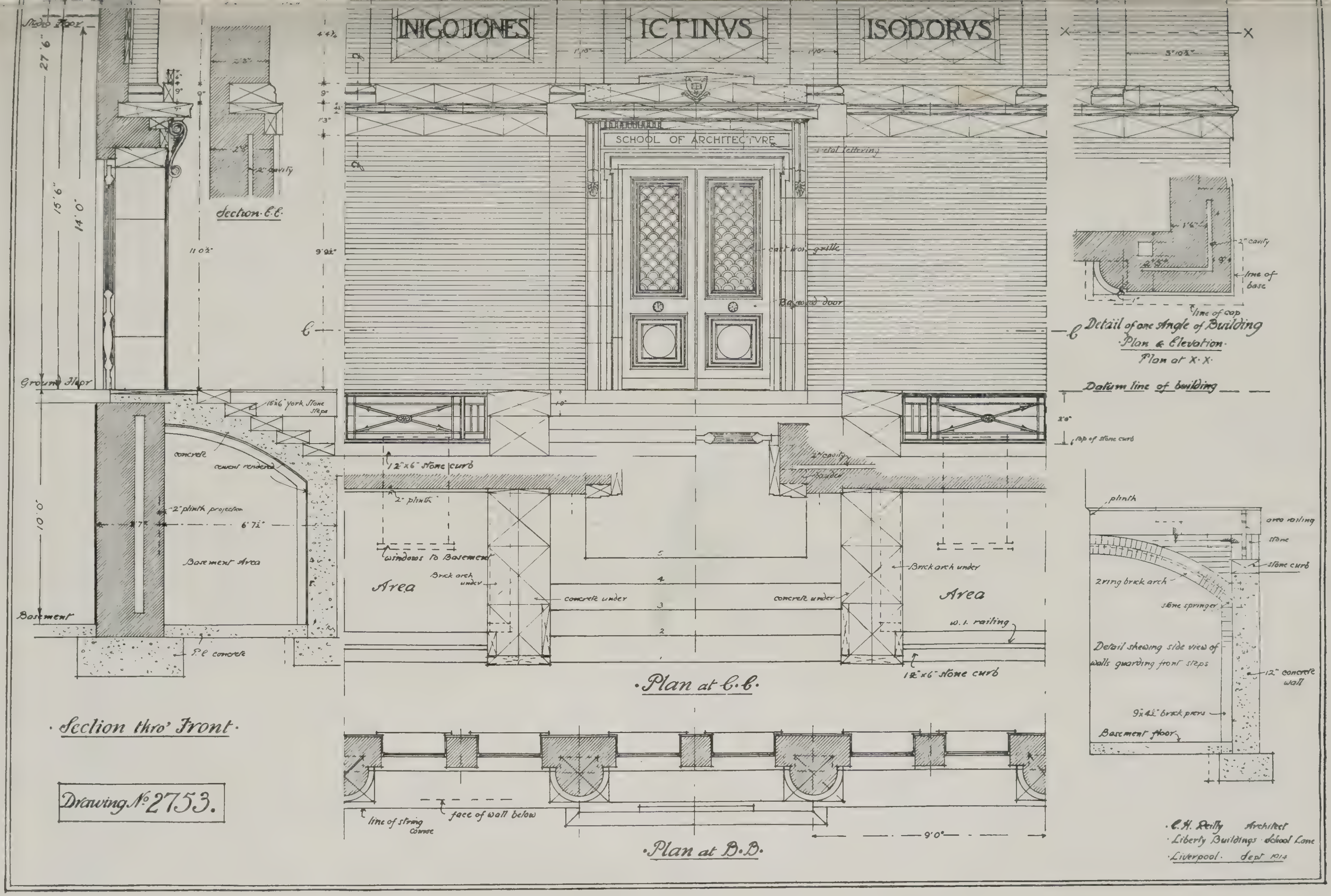

WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (SERIES II.). II.—NEW SCHOOL OF ARCHITECTURE, LIVERPOOL.

PROFESSOR C. H. REILLY, M.A., F.R.I.B.A., ARCHITECT

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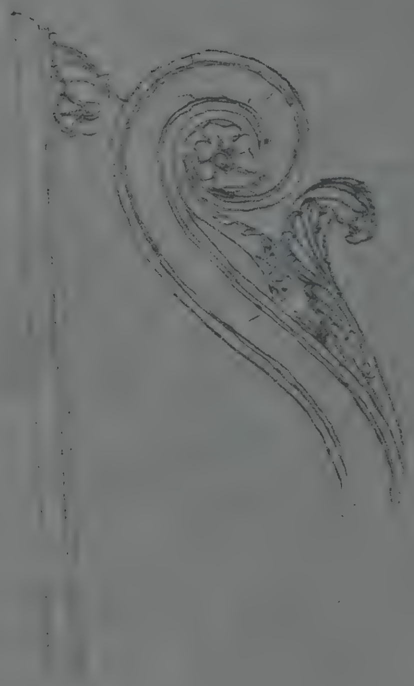

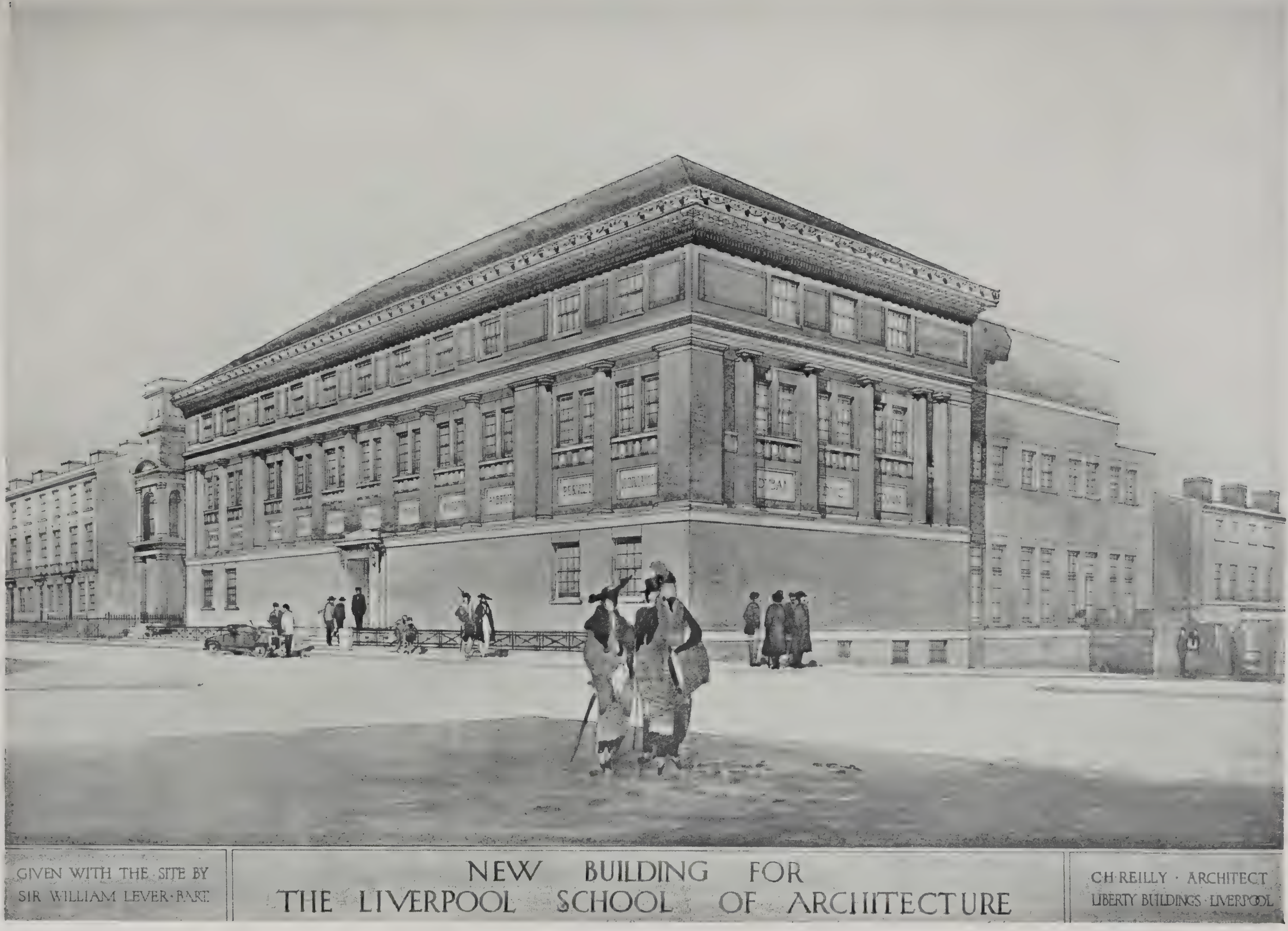

CURRENT ARCHITECTURE (SERIES II.). I.

PROFESSOR C. H. REILLY, M.A., F.R.I.B.A., ARCHITECT.

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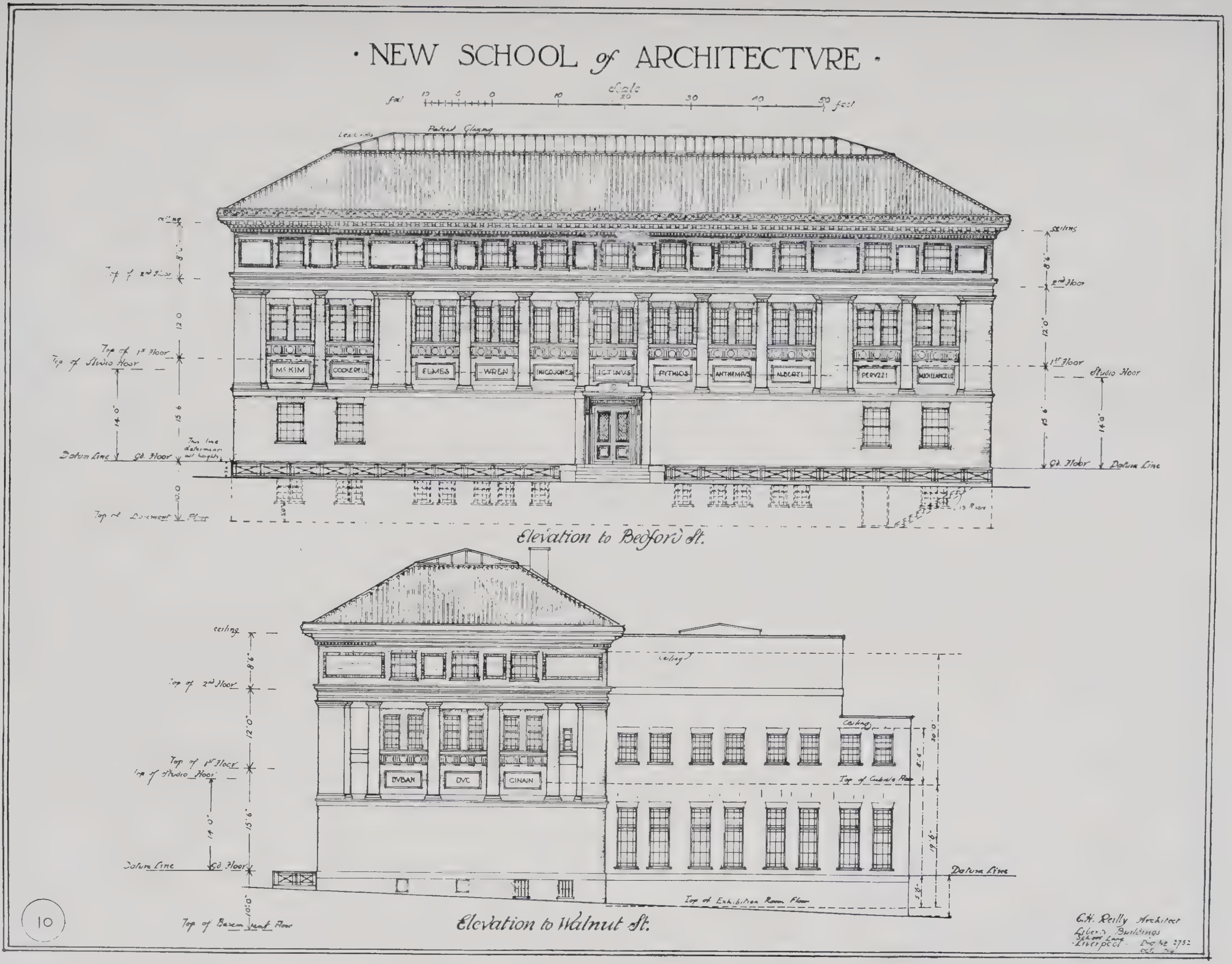

CURRENT ARCHITECTURE (SERIES II.). II.—NEW SCHOOL OF ARCHITECTURE, LIVERPOOL: ELEVATIONS.

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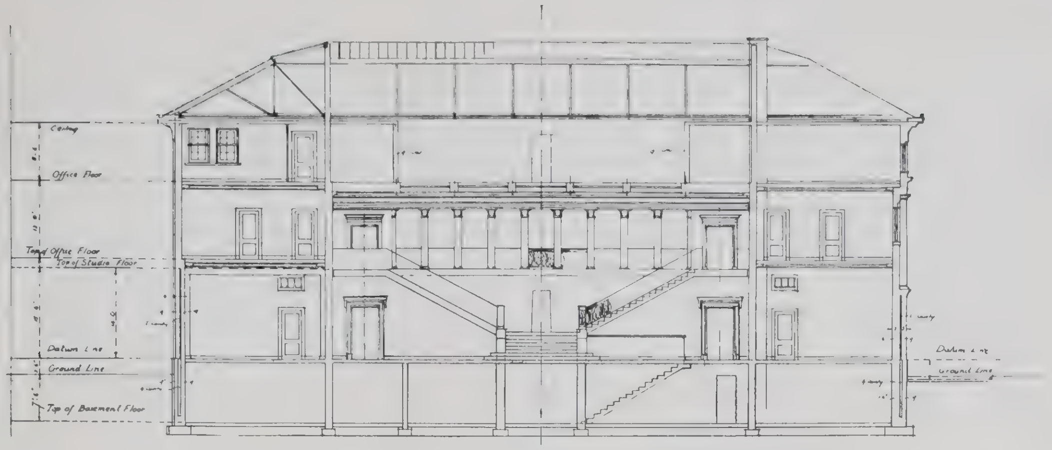

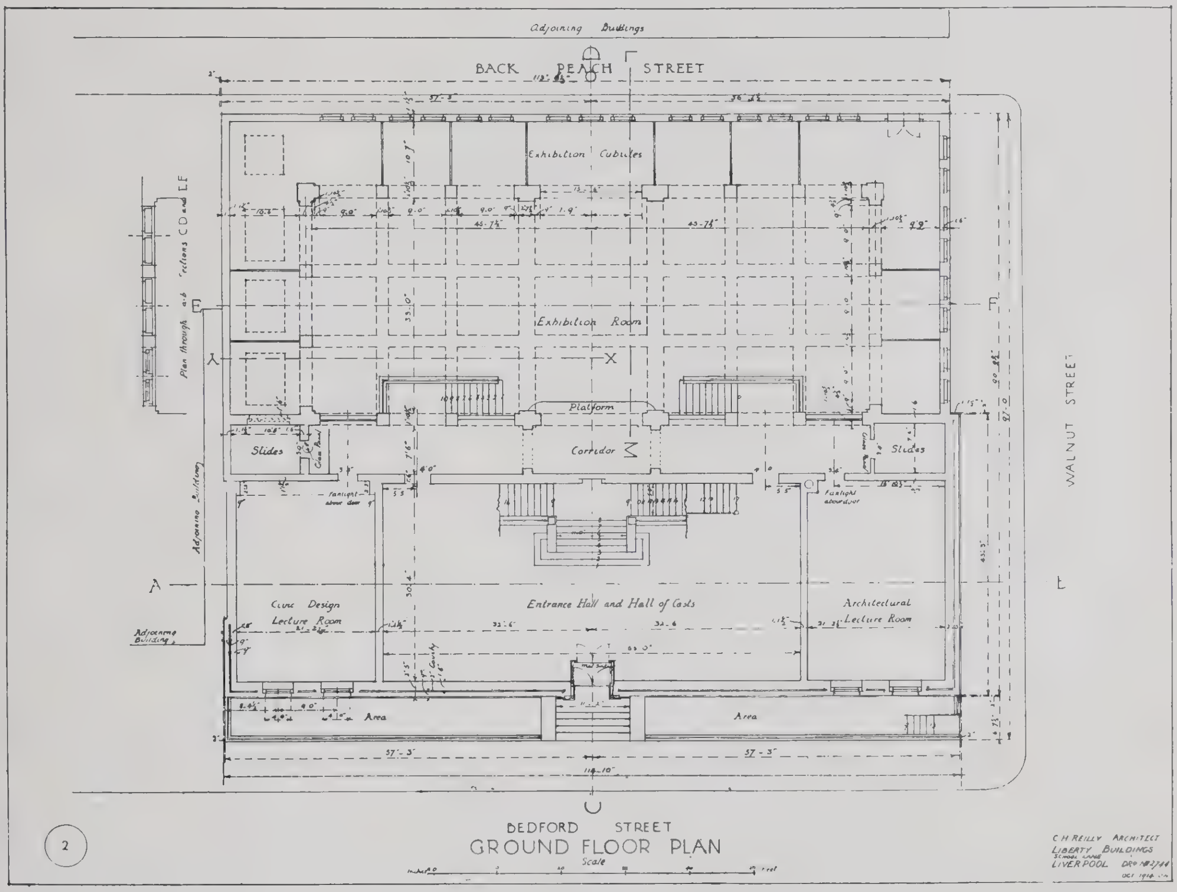

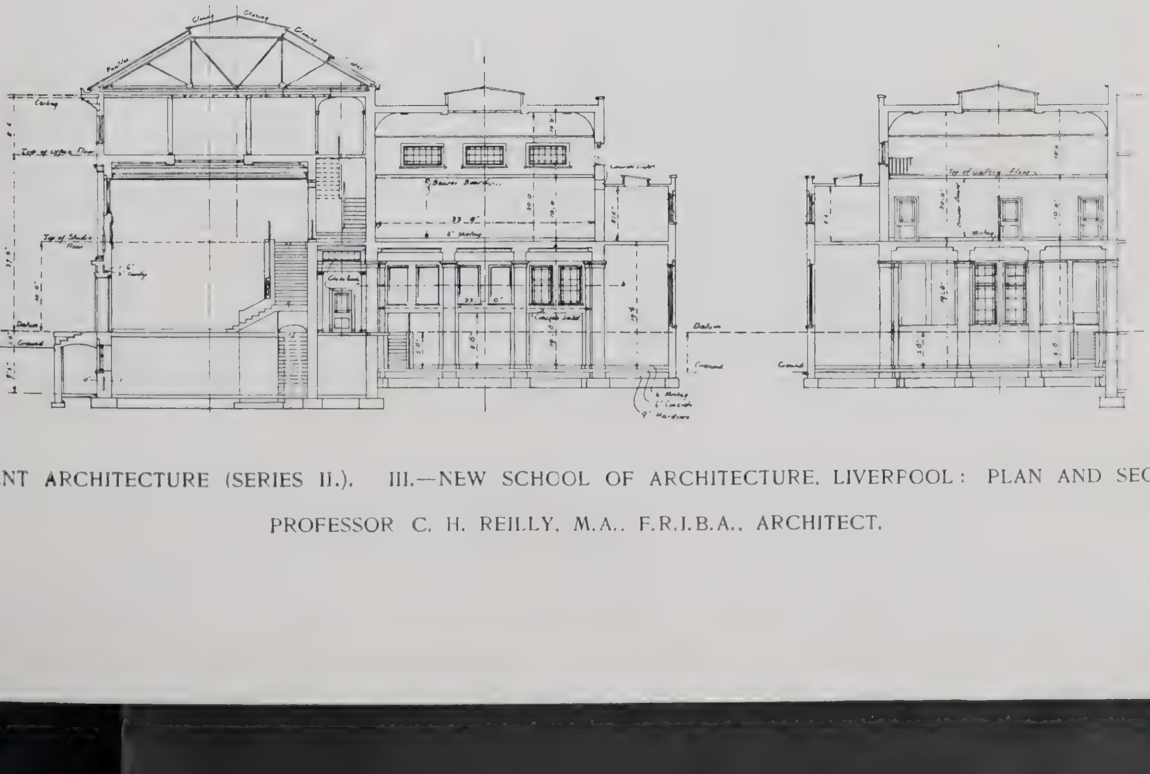

CURRENT ARCHITECTURE (SERIES II.). III.—NEW SCHOOL OF ARCHITECTURE, LIVERPOOL: PLAN AND SECTIONS.

PROFESSOR C. H. REILLY, M.A., F.R.I.B.A., ARCHITECT.

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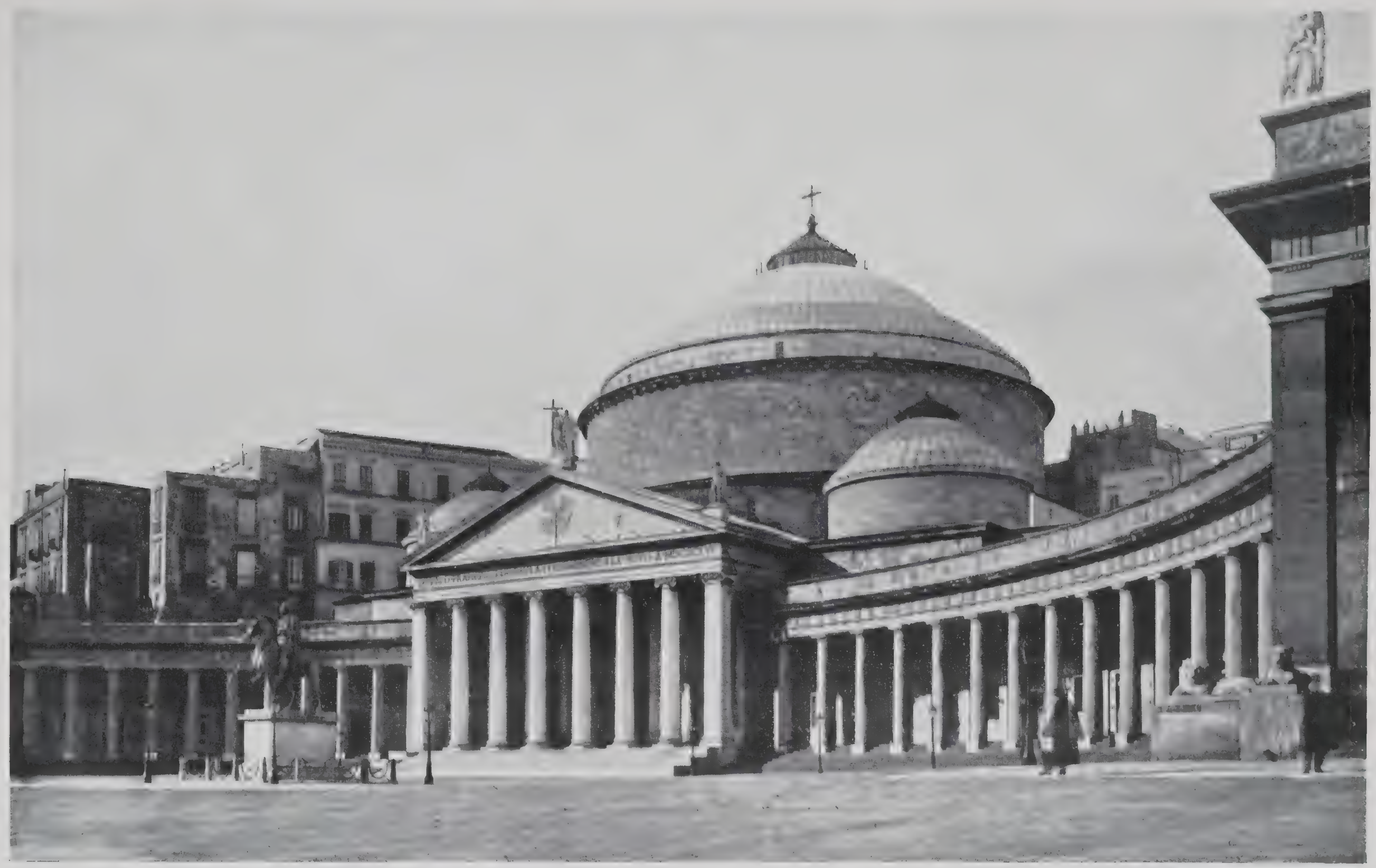

Photo: W. A. Mansell & Co.

MONUMENTAL ARCHITECTURE. XL.—CHURCH OF SAN FRANCESCO DI PAOLA, NAPLES.

PIETRO BIANCHI, ARCHITECT.

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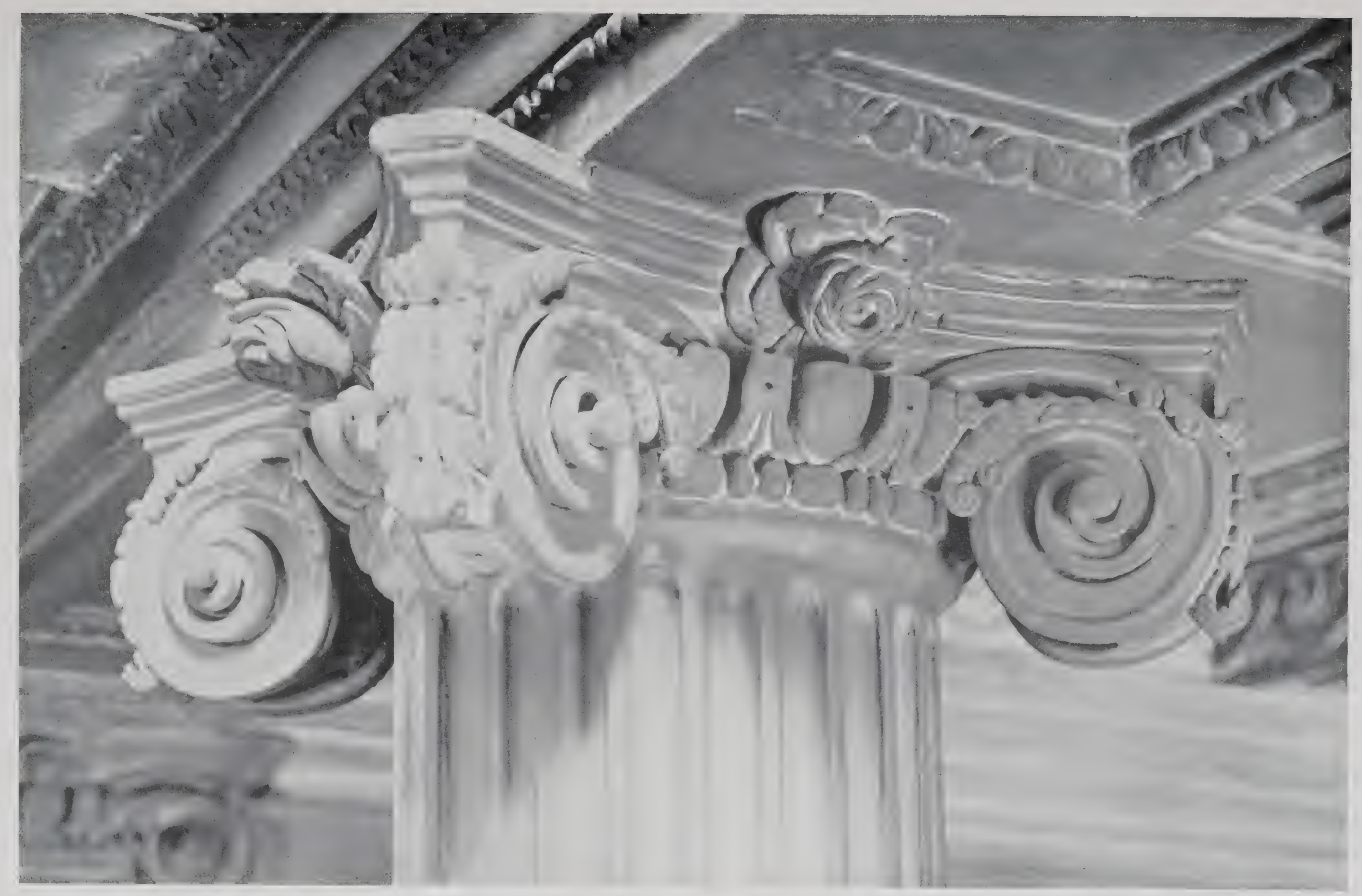

DETAILS OF CRAFTSMANSHIP. V.—CARVED WOOD CAPITAL. No. 9, CLIFFORD STREET, LONDON, W.

ISAAC WARE, ARCHITECT.

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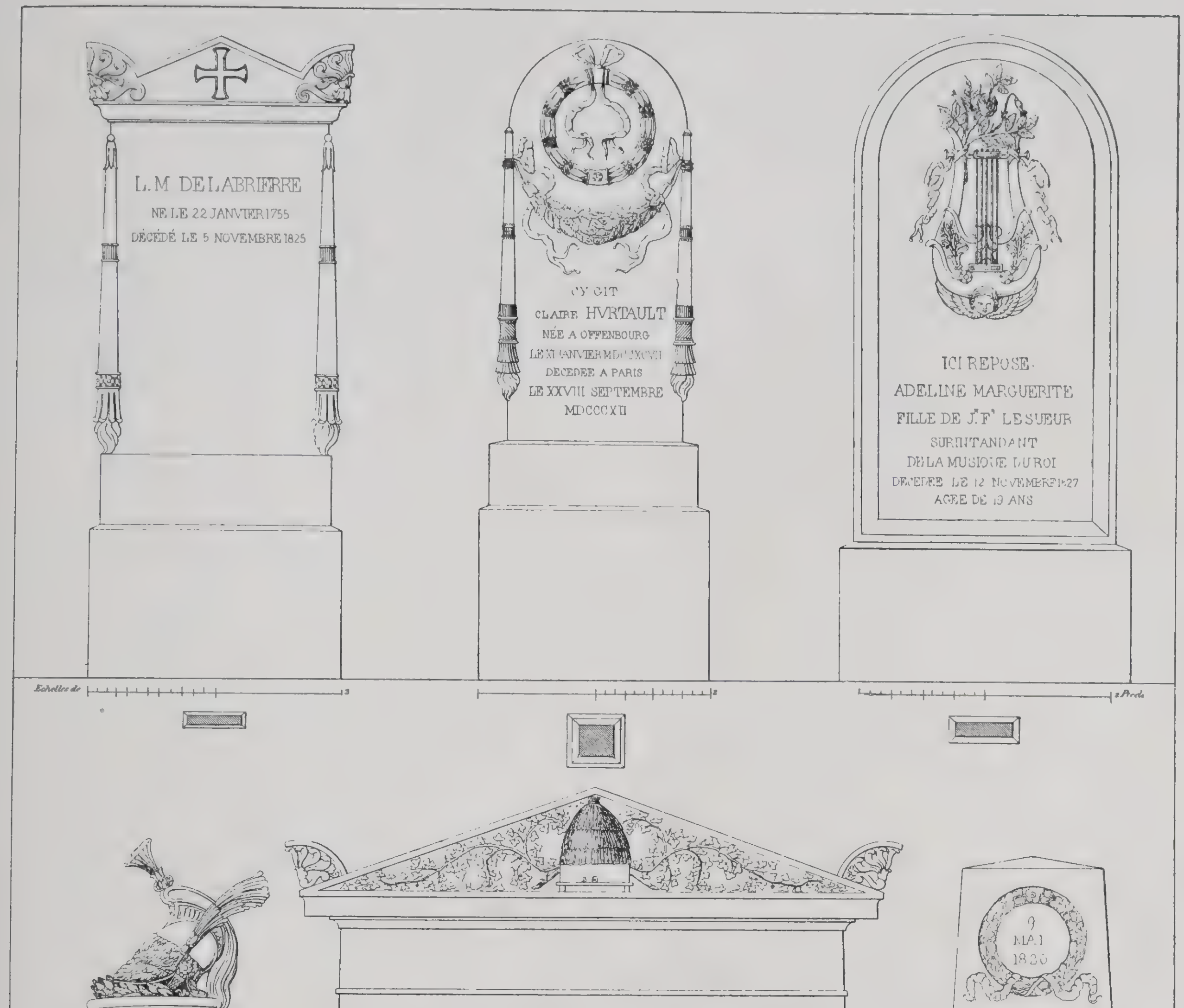

FRENCH MONUMENTS. III.—SIX MONUMENTS IN CEMETERIES OF PARIS.

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THE PLATES.

w School of Architecture, Liverpool University.

HIS will be the first complete building devoted by an English University to a School of Architecture (the building now being completed at versity College includes other subjects besides itecture). It is the gift of Sir William Lever, Bart., the building and its site (with main frontage to ford Street), to the value of £24,000. Messrs. im, Mead and White's building for the School of hitecture at Harvard, which in its turn is based on ain's Ecole de Médicine, has suggested the appro- te character—that and Duban's façade to the Ecole Beaux-Arts: the architect having felt that to get right character in a building for a School of Archi- ure there should be some traceable line of descent; for the rest, that it should be as simple as possible, ding anything merely fleeting and fashionable in il. From the drawings reproduced it will be seen the accommodation provided includes, on the nd floor, a spacious entrance hall and hall of casts, rge exhibition hall, and two lecture rooms; on the floor the main studio, with cubicles for advanced lents opening off it, a library, and rooms for the essor of Architecture and the Professor of Civic ign; and on the second floor a top-lighted map ery, atelier, and further cubicles.

Church of San Francesco di Paola, Naples.

his striking building, which occupies a fine site osite the Royal Palace at Naples, is one of the er known productions of the late Renaissance in y. Bianchi, its architect (1815-1837), took as his el the Pantheon at Rome, which he copied freely, certain internal alterations. The criticism has made that the sweep of the colonnade being con- ous, and the intercolumniation the same through- a monotonous appearance is produced, but, to our d, this is not the case. Certainly there is a grand about the whole conception; and its lay-out, with equestrian figure in the central space, is one to be lated.

A Capital by Isaac Ware.

he staircase at No. 9, Clifford Street—a town house in the occupation of a business firm, Messrs. tham and Co.—is a very typical example of the k of Isaac Ware (d. 1766), who was one of the older itects of the eighteenth century, standing for the ition of Wren rather than anticipating Adam. At foot of the staircase is a pair of wood columns ing some particularly well executed Ionic capitals. detail shows one of these, the vigour and beauty hich will be duly noted.

A Group of French Monuments.

Of the six monuments illustrated, one—of L. M. Delabrierre—is in the Southern Cemetery of Paris; two—of Claire Hurtault and Léon Lebas—are in the Northern Cemetery; the others being in the Cemetery of Père Lachaise. The most imposing of them is the monument to the family of Saint-Jores, which has been repeated more than once in Père Lachaise, but all display a studied grace and dignity, and offer many interesting details of design.

CORRESPONDENCE.

Scholarship and Efficiency in Architecture.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

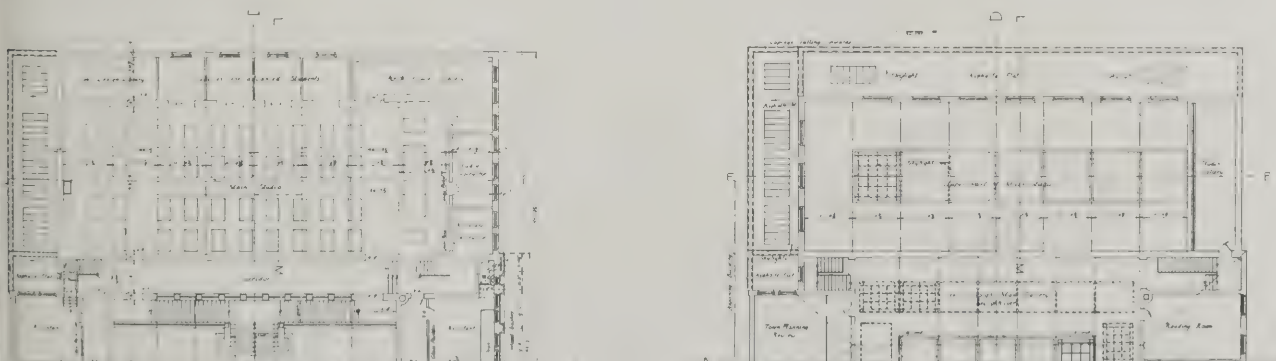
SIRS,—You have commented at some length, in your issue of January 13, on the subject-matter of my paper read before the Architectural Association of Ireland at the close of last year.

It is unfortunate for me that your criticisms should appear so long after your considerably condensed report of what I had said (issue of December 23). I do not wish to enter into any controversy in regard to the opinions I personally hold as to what is the essential quality of what we call "Art"; the subject is far too complex, and my ability to deal with it lucidly far too slight. I should, however, wish to make two protests: Firstly, against the custom of publishing an abbreviated report of a paper such as mine without reference to the author; and, secondly, against your implication that I undervalue the splendid work which our architectural schools have accomplished.

I quite realised that my paper would offer an irresistible target for editorial tilting; but, sirs, is it quite chivalrous to battle-axe one whose weapons of defence you have removed? You leave me but a rag of a quoted sentence, and then—the *coup de grâce* of your final sentence.

R. CAULFEILD ORPEN.

[We cannot agree with Mr. Orpen that his ability to deal with "the essential quality of what we call 'Art'" is "slight." It is because we attached considerable importance to his decidedly interesting address that we printed what we conceived to be the gist of it, and afterwards commented upon it. We share his regret at the abbreviation, which, however, was unavoidable. The assurance he gives that he does not undervalue the work of the architectural schools is very gratifying, and in entirely repudiating the battle-axe as an instrument of culture, we would point out that the "final sentence" to which he refers was, like the rest of the criticism, of general, not of personal application.—EDS. A. AND B. J.]



First-Floor Plan.

Second-Floor Plan.

NEW SCHOOL OF ARCHITECTURE, LIVERPOOL.

A DISCUSSION ON MODERN GERMAN ARCHITECTURE.

At last week's meeting of the Architectural Association, Professor W. R. Lethaby read a paper on "Modern German Architecture: What We May Learn from It." He said his right to speak on this subject consisted in his having been to Germany half a dozen times and having visited many of its important cities. Many years ago he came to the conclusion that Germany was "racing." She was conscientiously dividing up all human activities and knowledge into departments, and definitely setting herself to outstrip all other nations. She brought the Prussian war spirit into every phase of life. Think what it meant that forty years ago the leaders of Prussian power should have met together in one room and decided to enter upon such a campaign. Describing the extremity to which this campaign was carried, Professor Lethaby said the German motto seemed to be "everything beyond measure," and he thought one of the results of the system must be the drying up of the sources of inspiration. There seemed to be in the Germans a "radical outrageousness." Northern Germany, in fact, had never been brought within the circle of ancient civilisation; it was in the first round of civilisation only. There were two things, however, we should note to the advantage of Germany, her aptitude to learn from others and the wonderful development of her public works.

The first thing in art which we should learn from Germany was how to appreciate English originality. The Germans woke up to the value of that twenty-five years ago. Up to twenty years ago there had been in Germany a remarkable development of English art of all kinds, including architecture, and for five or six years, about the year 1900, the German Government had attached to their Embassy in London an historian of English "free" architecture. All the architectural work of the time in England was investigated and tabulated after the German manner. Then, just as English "free" architecture had arrived, there was a reaction, and the re-emergence of what he would call the catalogue style. In the meantime the Germans had been quick to seize upon the best that was in English arts and crafts, and their advance in industrial design was founded on English models, while our own Press and critics set about to kill the whole thing; in fact, they did kill the whole thing; it simply withered out here, and took itself to Germany. Germany pursued the arts and crafts experiments which we employed critics to destroy. She fostered an architecture that could develop in its own sphere, and was not like us, for ever casting back to disguise it in skins that it had long shed. The German architects grasped the idea of real architecture, and a wonderful idea it was too. Meanwhile we were caught up in one of our periodical reactions in architecture, as a form in which national energy should expand did not exist.

Professor Lethaby, turning to the subject of public works, said we should emulate the German method in this matter. For instance, we had our recurring Thames Valley floods, which came as a new surprise to us every eight or ten years. This was one of the accidents that happened with the regularity of clockwork. He read in the newspaper that the "fourteenth century embankment at Chertsey was being watched with great interest, and seemed likely to go." Fancy depending on a fourteenth-century embankment a few miles above London. An astonishing thing! It was surely time such matters were looked into.

Professor Lethaby proceeded to compare our military institutions with the fine academies of Germany. There was not the least reason, he said, why we should not have splendid institutions of the kind. The academic improvement of London, of which we had heard a good deal lately, was apt to waste itself a little in two directions. There was a tendency to begin the improvement of London by pulling down the few fine things we had, such as the noble terrace in front of the National Gallery and the Nelson Column. Secondly, while the research into the beautifying of London did excellent work on the idealistic side, there was a tendency to out-Haussmann Haussmann. His chief complaint, however, was that there was no steady stream of opinion turned on to everyday matters. There was, for instance, the necessity for improving the underground stations.

Continuing, he said he thought the technical press might help to save our great and noble architecture from becoming a mere adjunct to "new-richness" and "week-ending." They were getting too much of the billiard-room and the golf-house. Architects should make a habit of seeing things as they were, not looking for Gothic or Classic architecture and that sort of thing, but noticing the streets as they were, the untidiness, the orange peel. Let them make it a topic of conversation. It was their duty as architects to improve and organise public life. "Go about saying to everybody you meet 'Charing Cross Station must be put out of the way.' Talk to your cabman about it."

A tremendous work had to be accomplished in England in improving all their villages and towns and the public services. He urged them to go ahead with these matters, and to back up all active efforts.

* * * *

At the conclusion of the paper a number of lantern slides from photographs by Mr. Cecil Brewer were exhibited. These showed typical German architecture of an industrial kind, including bridges, factories, railway stations, commercial buildings, etc. As these were shown Professor Lethaby kept up an incisive commentary. He pointed out the characteristic thoroughness which most of the work displayed. One or two of the subjects he suggested were surely quite beautiful.

Sir Thomas Jackson, in proposing a vote of thanks, said they were not at the present moment in a mood to care to imitate Germany or to learn much from her. He thought the character of German art had been much overrated by the Germans themselves; in the past their art had been generally copied from that of other people. In architecture they took their early Romanesque style from Lombardy, their Gothic from France, and had copied the architecture of the Middle Ages of other countries. They had never been distinguished for originality, and their claim to superiority in scientific achievements was disputed by everybody. They had been more distinguished as archæologists than as architects. Certainly they possessed a great talent for public administration in every department of life, whereas all great movements with us originated through private enterprise. He had been agreea
surprised by the views they had seen t
evening, but the main motive of them
engineering, and emphasised the import
truth they were so apt to forget, that
foundation of all good design lay in g
construction. Actually, between the ar
tect and the engineer, no definite line co
be drawn. Directly architecture br
away from construction it was sure to
wrong.

Mr. Martin Shaw Briggs congratula
Professor Lethaby on being bold enoug
give the devil his due. He could har
imagine any German Professor stand
up to give the Germans a lecture on w
they could learn from anything that
British. He had visited Germany
before the war in connection with
special kind of continuation school L
Haldane wished to establish in
country. He should like to add his te
mony to what Professor Lethaby had
about two or three most valuable asp
of German architecture. We could lear
great deal from their railway stations
commercial buildings. Mr. Ma
Phillipps would probably have seen
these buildings an attempt to realise w
he had preached with such decision.
thought that as architects they could
two things from the Germans—(1)
wonderful facility with which they
modern materials, such as plaster of
tain sorts and steel (they used t
materials with a vigour and freshness
still lacked; there was a large field fo
vestigation into the way in which the
mans used plaster, both externally and
ternally); and (2) the artistic skill in t
employment of simple decorative mate
internally. They made a great us
colour in the decoration of their muni
buildings and private houses.

Mr. Cecil Brewer complained of
Thomas Jackson's letter to "The Tim
to the effect that German architecture
to be judged by the two monstrous s
at Cologne and by the memoria
Coblentz. He did not think this was a
test. They might as well judge En
architecture by the north transept of W
minster Abbey and the French by the
of Rouen. As for the memoria
Coblentz, it at least expressed someth
it expressed the national spirit, how
evil. Was there anything about our
memorials which could be said to ex
anything but the lesson of the an
shop?

Mr. H. H. Statham thought the
mans were essentially an inartistic pe
He could not admire the specime
bridges that had been shown on the sc
and he could not agree that their t
ment of ironwork was beautiful.

The chairman, Mr. H. Austen Hall,
that when recently in Germany he we
see a very interesting competition f
Bismarck memorial. The drawings
hibited were simply marvellous. The
majority of designs were colossal fi
of the man of "blood and iron,"
every conceivable brutality about them
the selected design was beautiful and
entirely different from any of the
war memorials, showing a symb
figure of Siegfried surrounded by a ri
stones, each of which illustrated some
in the Chancellor's life. The fact tha
selected design was without brutality
horror led him to wonder if after al
Germans were "getting tired of t
selves."

ANNUAL MEETING OF THE NATIONAL FEDERATION.

annual meeting of the National
ederation of Building Trades Em-
s of Great Britain and Ireland was
the Throne Room at the Holborn
rant on Wednesday, January 27,
. Thomas, of Cardiff, presiding.
President introduced two members
Belgian National Federation of
ng Trade and Public Works Con-
s, one of whom in the course of his
said that Belgian contractors would
o look to the British builder and
ctor for assistance in the rebuilding
gium. The Germans had destroyed
ly the buildings, but the primary
als for rebuilding, and had worn out
n tools and plant.

Strength of the Federation.

President, in moving the adoption
annual report (which has already
ublished in the "N.F. Record"), said
ar had been one of great difficulties.
ederation had not only been able to
nt these, but stood more firm and
than it had hitherto done. This
l conclusively the great value of
tion principles. They had made
nembers than for several years past.
ped that the good work that had
done would be the means of in-
the London representatives to join
nciliation scheme.
report, including that of the
yers Parliamentary Council, intro-
by Mr. William Shepherd, was
d, and Mr. Hope (Sunderland)
a resolution recording the Federa-
appreciation of the work of the
, and particularly the excellent
done by the National Secretary,
was carried.

The Apprenticeship Question.

Cooke (Preston) called attention to
pprenticeship question. This had
more important than ever, as
to the war there would be a great
ge of workmen. They were not
any encouragement from Govern-
epartments in the matter, for it did
an employer to use apprentices on
ment work, on account of the inade-
cale of profit allowed. He had been
at London employers were not so
n the training of apprentices as they
be, but chose to rely on the provinces
ir supply of labour.
Renshaw (London) said this was
London master-builders had for
ried to improve the apprenticeship
.
Howarth (Rochdale) said they had
raise wages to get apprentices. He
the educational system.
Woods (Bolton) said that many big
mations of manufacturers in the
as well as various corporations,
ow employing their own building
orks staffs, and this was a condition
oduced no apprentices. Then, the
nions had rules limiting the em-
nt of apprentices, which rules the
ation Boards should endeavour to
, as the trade would be in a very
position as to labour in a few years'

President agreed that the educa-
ystem was at fault, and said he had
ternoon suggested to the authorities
hnical classes should take the place
ing instruction.
A. Thorne (London) complained
authorities were wasting money on
al education at the schools, when it would be better spent in premiums to apprentice boys to be taught by employers.

After some further discussion it was decided to refer the question to the Administrative Committee for consideration and action.

Thanks from L.M.B.A.

A minute was read from the London Master Builders' Association expressing the heartiest thanks to the Executive Council and officers of the National Federation for their co-operation and assistance, freely rendered, during the continuance of the London dispute.

New Unit Admitted.

The Council reported an application from the Amalgamated Society of Woodcutting Machinists for admission to the Conciliation scheme, and recommended this be agreed to, subject to the usual working rule agreements. This was approved by the meeting.

Priced Schedules with Tenders.

The Secretary reported that the previous day the Council had considered a request from the Yorkshire Federation that the question of demanding priced schedules with tenders be taken into early consideration with a view to definite action. The Council recommended that this be referred to the Administrative Committee for consideration and report. This was agreed.

National Insurance Act.

Mr. J. Davidson (Leeds) moved a resolution, which came from the Yorkshire Federation and Midland Centre, to the effect that the cost of accident, health, and unemployment benefits was excessive and onerous and should be re-adjusted as to incidence, and calling on the Government to amend the Act. He said that the Home Office estimated that five millions yearly were expended by employers in connection with workmen's compensation, and of this amount one million found its way into the hands of the legal and medical profession in connection with the settlement of claims.

Mr. Foster (Burnley) said Mr. Lloyd George had told them to hand on the cost of the Act in the form of extra charges to their customers, but this was the usual roundabout method favoured by those who imposed taxes.

Mr. W. Shepherd (London) advocated State-appointed medical referees to sit with the county court judges.

Mr. J. W. White (Sunderland) said that what was wrong was the increasing number of claims, and the increasing amount of compensation allowed. They ought to make representations to get the matter quickly settled by medical men rather than by judges, and proved cases of malingering should be severely punished.

After further discussion the resolution was referred to the Administrative Committee for consideration.

Ministerial Department of Industry.

The Secretary announced that the Council had considered a letter from the British Engineers' Association asking the Federation to collaborate in bringing before the Government a scheme for the establishment of a Ministerial Department of Industry for the advancement of British industry. The Council had agreed, and had appointed a committee to deal with the matter. This was approved.

Forfeiture by Freeholder.

Mr. J. Jones (South Wales) introduced a motion from his Federation asking that steps be taken to amend the law so that if a freeholder or his assignee by way of forfeiture took over and used goods or works he should be required to pay for them. He moved it be referred to the Administrative Committee.

The President pointed out that it had already been twice before the committee. Finally it was decided that it remain with the committee, and be kept alive until means of moving in the matter occurred.

Municipal Trading.

The Secretary reported that the Council had considered information of a confidential character in regard to municipal trading, and that a resolution had been passed calling on the Local Government Board to take steps to protect the interests of ratepayers in connection with the carrying out of work by public authorities.

Mr. J. Davidson thought that when public authorities employed direct labour on a contract with the object of cutting down expenses the Local Government Board should see that the work was in quality and execution up to the standard that would be required from a contractor. There was small possibility of getting at the actual cost of work carried out by direct labour.

The recommendation of the Council in this matter was agreed to.

Form of Contract.

Mr. Moffat (Birmingham) moved the following resolutions: (1) That this meeting considers that the time has fully arrived when all public authorities should use a satisfactory and approved standard form of contract and conditions for all their building and constructional engineering works, and should fully observe the customary methods in obtaining tenders for such work; (2) that all associations be asked to report by April 30 at latest to their respective county federations and centres (*a*) what form of contract conditions is in customary use by authorities in their locality, (*b*) if they consider such to be satisfactory, or, if the reverse, in what particulars. That the county federations and centres collect such information, and report to the Administrative Committee by May 31, with their comments and suggestions on the subject, and the Administrative Committee be empowered to act as and when necessary and to report to the half-yearly meeting in July.

After some discussion this resolution was agreed to.

The Price of Timber.

The Secretary reported that the Council had considered a communication from the Yorkshire Federation, which was much concerned about the quantity of timber in stock, and the probable shortage for the building trade. The Council had also received reports from representatives who had been in communication with the Board of Trade on the subject.

Mr. W. F. Wallis (Maidstone) said a deputation of the Federation had had two interviews with the Board of Trade. The Board informed them that a stock had been taken of the amount of timber available in the hands of merchants and dealers, which showed that there was only 25 per cent. less timber in stock than at the corresponding period of last year. This was considered fairly satisfactory, and the deputation went into a considerable discussion on what was likely to be the prospect in the future. The discussion turned chiefly on the possibility of obtaining supplies of suitable timber from other parts of the world, mainly from British Columbia and from Canada. The officials expressed themselves willing to do what they could to bring the requirements of builders to the notice of the timber exporters of those countries, and the Council were supplying the Board of Trade with a list of the sizes habitually used by builders, and of the grades of qualities. They also discussed the question of the extent to which the heavy demand of the War Office had contributed in depleting the stocks of timber. The Board of Trade officials assured them that they had taken up the matter with the War Office, but could give no assurance that the latter authority would see its way to depart from its present system of using timber for the erection of hutments for the troops. They also discussed what could be done to render available the stocks of timber in London and other ports, and the officials assured them that they were doing everything in their power to remedy congestion, and that an improvement might soon be expected.

Mr. Thorne complained that builders were paying 40 per cent. more for stock purchased by the merchants before the war, and said this was a matter that should be looked into by the Government.

The President said this matter had been gone into, together with that of fixing a maximum price, but it appeared that nothing could be done because of the needs of the War Office.

Mr. J. W. White said that what would have relieved them most was a release from their contracts made under the old prices, or their equitable reconsideration with a view to reimbursing extraordinary cost due to the sudden outbreak of war.

The matter was then dropped.

The New President.

Mr. A. W. Sinclair, of Scarborough, was elected President for the ensuing year, and took the chair for the remainder of the meeting. In returning thanks for his election, he said much good had resulted from the London dispute. It had had the effect of drawing London and provincial masters close together.

A hearty vote of thanks was passed to the retiring chairman.

It was decided to hold the next half-yearly meeting in Yorkshire.

R.I.B.A. RECEPTION OF BELGIAN ARCHITECTS.

The Royal Institute of British Architects has from the first opened its doors to the numerous Belgian architects who have sought asylum in this country from the reign of terror in their own. Certain privileges of membership have been accorded them, such as the use of the Institute's fine library and the right of attendance at its general meetings, and courtesies have been extended to them by individual members anxious to lessen the rigours of their exile. On Monday last week a number of these gentlemen and their ladies were the guests of the Institute at a reception given in their honour at 9, Conduit Street, W. The President, Mr. Ernest Newton, A.R.A., accompanied by Mrs. Newton, received the guests, and warmly welcomed them on behalf of the Institute. The architects present included men eminent in their profession, some holding high official positions in Brussels, Antwerp, Liége, and other of the chief Belgian centres. The opportunity of meeting their colleagues under the hospitable roof of their British professional brethren was evidently much enjoyed and appreciated. On the walls of the reception rooms were displayed some of the treasures of the Institute Collection, consisting of original drawings of seventeenth century Italian, French, and English masters, and the original water-colour drawings by James Stuart depicting views in Greece, afterwards reproduced in Stuart and Revett's famous work, "The Antiquities of Athens."

THE ROOF OF WESTMINSTER HALL.

Mr. W. D. Caröe, F.R.I.B.A., has written a letter to "The Times" on the subject of the roof of Westminster Hall, which is now undergoing repair by the Office of Works. This roof, says Mr. Caröe, has existed for over 500 years as a great timber construction, renowned the world over. "Despite its great span, it has endured wonderfully all these years without shifting or distressing in any way its supporting walls. The Blue Book tells us 'the massive walls of Rufus Hall show even at the present day no sign of failure.' We are told, also, that there has been decay of material, but no failure in construction. Nevertheless, this roof is now in process of being transformed at great cost into a fresh construction, in which the timber is to be made subservient to steel for its continuance. The glory of the roof and of those who conceived it, its inherent honesty, will thus depart for ever. It will become for future generations, as an honest piece of carpentry, a mere sham, a monument only to the skill in modern construction which is thus transforming it. The contemplated procedure has not, therefore, been determined upon in obedience to that curious extremist latter-day policy, which refuses to employ material the same as the original in works of repair, lest posterity should be deceived by mistaking the date when the repairs were done. But I cannot ask space to discuss details. I challenge the need for thus wiping the roof out as a great and self-sustaining example of mediæval carpentry. It can be, and ought to be repaired as a timber roof. . . . The approximate estimate (ante-war prices) is stated at £60,015. I have gone into the matter most carefully, and have obtained a firm reliable estimate for erecting an entirely new roof to the old plan in English oak at least seven years felled. The figure is £49,500 (ante-war prices). But as there is a vast amount of timber—I believe the greater part—which would endure another 500 years, the cost of properly repairing the roof as a timber construction would certainly be materially less than this. . . ."

Replying to this, Sir Aston Webb and Mr. Reginald Blomfield say: "In the summer of 1914, at the request of the Ancient Monuments Board of England, we very carefully examined both the plans for the repair of the roof and also the roof itself from the extensive scaffolding then available. As the result of our examination, we found that the roof timbers had been ravaged from end to end by the larvæ of one of the anobiid beetles, and we were convinced of the necessity of very extensive works of strengthening and repair. We also found that the construction of the roof, with its double principals, lends itself extremely well to the steel reinforcement proposed by Mr. Baines. The method proposed will avoid taking the whole roof to pieces, and altering its appearance. It is, in our opinion, the best means of preserving this magnificent specimen of mediæval carpentry, and we so reported to the Board."

NEWS ITEMS.

A Scheme of Decoration by Alfred Ste

The cartoons, paintings, and dra
made by Alfred Stevens for the deco
of the dining-room at Dorchester
are now on exhibition at the Tate Gal

Housing Scheme, Doncaster.

It is stated that about three hu
architects are competing for the
Mr. Patrick Abercrombie is the ass
Designs have to be sent in by the
of February.

R.I.B.A. Problems in Design.

To-day (Wednesday) is the last
three days this week on which the d
submitted under Subject XVIII. have
exhibited at the R.I.B.A. Gallery, 9,
duit Street W., from 10 to 8.

An Exhibition of Craftsmanshi

At the Central School of Arts and
Southampton Row, W.C., an exhibit
students' work is open until Febru
from noon to 9 p.m. daily. It com
handicraft in printing, lithography, en
ling, cabinet work, carving, furr
stained-glass, etc., etc.

Elections to French Architectural S

Mr. Reginald Blomfield, R.A.,
president of the Institute, and Mr.
Newton, A.R.A., P.R.I.B.A., hav
ceived the honour of election as "Me
Correspondants" of the Société des
tectes diplômés par le Gouvern
Français.

War Risks and L.C.C. Building

A London County Council stat
says that no insurances are being e
in respect of war risks to building
property belonging to the Council,
in contracts for new buildings a cla
being inserted to make it clear tha
tractors will not be required to ta
risk of damage by the King's enemie

Sculptor's Sudden Death.

Alexander Young, a sculptor, wh
been executing the statuary groups
new Guildhall and Law Courts at
was found dead on the scaffoldi
the tower of the Guildhall, nea
carving on which he had bee
gaged. The distance from the
was 130 ft. He is believed to hav
suddenly taken ill. When it was
he did not return home on Friday nig
tower was ascended and his bod
found. Mr. Young belonged to
burgh and had been engaged on the c
on the Hull municipal buildings fo
years.

The Garden City as Practical P

Mr. Aneurin Williams, M.P., pre
last Thursday at the eleventh or
general meeting of the First Garde
Ltd., (Letchworth), said the compa
earned during the year £3,200,
about 1¾ per cent. on the share c
They carried forward an accum
profit of £7,677. The war seem
make the payment of a dividen
inadvisable. In intimating his int
of resigning the chairmanship of th
pany, Mr. Williams said they set
create a garden city with an indep
municipal life. To a considerable
they had proved it could be done, b
had not yet proved that it could b
quickly enough to afford as great a
lesson as it should, and to pay a
interest on the capital invested in it.
it did this last it would not be cons
practical politics.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

APPLICATION OF CON- 'E IN MODERN SANITATION.[*]

NRY J. TINGLE, M.INST.C.E., M.C.I.

crete has played its part in sanita-
r many years, with more or less suc-
ccording to the skill of the designer
e quality of the materials and work-
ip. The tendency in recent years
een to employ concrete more and
and this tendency in the future is
extend its use in directions where
is scarcely applied.
tation works have been particularly
d by the attitude of the Local
ment Board towards reinforced
te, as such works are generally
aken by local authorities, who have
in the sanction of the Board to the
of a loan for the amount of capital
liture, or else to obtain Parlia-
y powers by means of a Private Act.
eat majority of authorities, however,
the first of these two courses of pro-
, and the practice of the Board is,
case of reinforced concrete for works
tact with water or sewage, to re-
he capital sum to be paid off in a
of ten years; whilst in the case of
ry concrete, under the same condi-
the period of repayment is thirty
In cases where, in addition to rein-
concrete in contact with water, there
forced concrete not in contact with
the periods for the loans on each
re sometimes equated together, and
an for the whole granted for the
given by the equation.
btless in the early years of reinforced
e the Board were well advised to
tiously in the matter of sanctioning
or the use of a combination of
als of which, in this country, there
en scarcely any experience, either as
uitability or as to its life in sanita-
orks. The effect of this differentia-
the part of the Board in the treat-
of concrete and of reinforced con-
has been to curtail the employment
latter in public works of sanitation.
lear that under the present condi-
where the loan is obtained for rein-
concrete, the burden thrown on the
ers annually to repay the principal
terest in equal annual instalments
over ten years would be more than
as great as for a loan of equal
t and rate of interest obtained for
y concrete to be repaid in equal
instalments in thirty years. The
ng example will illustrate the
: If £1,000 be borrowed at $3\frac{3}{4}$ per
nterest to be repaid in equal half-
instalments of principal and interest
ms of 10 years the amount to be
ach half-year equals £60 8s. 6d.;
years, the amount to be paid each
ar equals £27 18s. 1d.
difference between these two
ts is approximately £32 10s., which
per cent. of £28.
ese circumstances it is only natural
ost authorities elect to use ordinary
te, in order to ease the burden on the
t ratepayers and throw part of it
he ratepayers of the future. The effect of the differentiation amounts to this —that unless the cost of the works can be considerably reduced by the employment of reinforced concrete, as compared to ordinary concrete, there is but little probability of local authorities deciding in favour of the former. The requisite saving may be effected in some instances, but, so far as the experience of the author goes, this is not generally the case.

With the experience that has now been obtained relating to the behaviour of reinforced concrete that is constantly in contact either with water or with sewerage, it is permissible to hope that the time is not far distant when the Local Government Board will reconsider its attitude towards this material, and, in cases where it is proposed to make use of it, will sanction loans on more favourable terms as to the period of repayment than those now in force.

Concrete has been and is now extensively used in the construction of reservoirs, sewerage tanks, filters, aqueducts, and water towers. Full descriptions of these works are to be found in technical journals and volumes of proceedings at the various engineering societies. The same holds good for similar structures in reinforced concrete, though to a more limited extent, but numerous examples are given in the catalogues issued by the various firms specialising in this class of work.

Mass concrete has been largely used in the construction of sewers of 4 ft. diameter and upwards. It is moulded in the trench and supported by centering until set. Elliptical sewers are also constructed in this manner. In recent years reinforced concrete has been employed for sewers of both types, the mixture being sufficiently stiff to admit of ramming.

Concrete tubes have been extensively employed in main sewerage work for many years past, being supplied ready for use by firms who have taken up their manufacture. Concrete tubes, unless strongly reinforced, should be laid on a concrete bed not less than 6 in. in thickness, the concrete to be brought up round the tube as far as the springing. By the omission of this precaution many failures have occurred. In tubes liable to internal pressure the concrete should entirely surround them. The tubes have ogee-rebated joints, which are luted with cement, and the inside pointed up.

Reinforced-concrete pipes have been used for water mains at Swansea against heads of 246 ft. and 500 ft., at Norwich for sewerage raising main head 131 ft., and at Clydebank for water head 390 ft., and are about to be laid at Leeds for water. They have been largely used on the Continent, and 119 miles of 10-in. to 49-in. water mains were in course of construction in Flanders at the outbreak of the war. They have also been largely used in Paris. Twenty years since the Municipality laid down one mile of 6 ft. diameter as a rising main for sewerage head 115 ft., in a gallery alongside a steel-riveted main of same diameter. It has been found that the steel main requires considerable maintenance and the concrete tube none. Concrete tubes are constructed to form manholes, water tanks, and cesspits. Sewers, reservoirs, manholes, etc., are constructed with mounded blocks of concrete, which are supplied by various manufacturers. As illustrating in greater detail the application of concrete to sanitation works the author then described and illustrated the following examples: Failure and reconstruction of concrete-covered reservoir; temperature cracks in concrete reservoir wall; ejector chamber in concrete with steel-plate lining; concrete mole forming sewerage outfall into sea; circular hydrolytic tanks in reinforced concrete.

At the end of the paper an illustrated appendix was given descriptive of the methods and manufacture of concrete tubes by various firms of specialists.

CONCRETE FOR MILITARY HUTS.

Timber-built military huts, erected in a hurry, are reported as showing all the defects which, in the circumstances, might have been anticipated, and a long run of bad weather has greatly accentuated the mischief. For this state of things the contractors are less to blame than the War Office authorities, who laid down rather strict conditions as to price and time, and who were apparently unaware of the existence, or at all events of the applicability, of newer and incomparably more efficient methods and materials of construction. Their ignorance would have been excusable but for the fact that, immediately on the outbreak of the war, the services of the whole body of organised architects in the kingdom were freely and formally placed at the disposal of the Government and were politely set aside.

Since then, we understand, even more definite and explicit proposals have been made to the War Office to construct military huts with concrete walls and floors for the same cost as the wooden ones, and the offer has been refused. This is quite in accordance with precedent. Well entrenched in the narrow but fairly deep trenches of tradition, and snugly ensconced behind bomb-proof bales of red tape, the War Office never yields to the first assault, and there is always tremendous difficulty in capturing its outworks. In mere patriotism, apart from considerations of business (for it would appear that there can be but little profit in it) concrete specialists ought to combine in an irresistible attack. They have a good thing to offer, and should not be backward in bringing it to the notice of the authorities.

Nor is concrete the only excellent resource available. Many special materials for roofs, floors, and partitions, light, cheap, weather-tight, fire-resisting, sanitary, and capable of being put together with extreme rapidity, would give incomparably better results than the crude wooden structures which are consuming so much timber that might be more profitably employed in more suitable services.

Wooden huts, we learn, have been in many instances compulsorily abandoned, and, at great expense and inconvenience the troops who occupied them have had to be billeted. By this time, therefore, the War Office must have learned its lesson, and we suggest that now is the psychological moment for bringing forcibly to their notice the adaptability of concrete, and of the numerous special materials of which the success in similar work can be abundantly proved to demonstration.

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[*] -act of a paper read before the Concrete Insti-
January 7.

HOISTING HEAVY GIRDERS IN A HIGH BUILDING.

A most striking instance of modern building methods is afforded by the record of the hoisting of some 40-ton girders at the office building of the Consolidated Gas Company in New York, where seven new floors have been suspended from eight plate girders spanning the old part of the building. The girders were hoisted from the street and swung into position far above the occupied building by a single 80-ton steel derrick situated near the top of the new steelwork. Special provisions were made for the distribution and support of the concentrated derrick loads and for the temporary girder-hoisting attachments.

The present nineteen-storey structure has a front nearly 300 ft. long, built on both sides of, and including, a former twelve-storey building 150 ft. high with a 62-ft front. The new building incloses the old building, and required the addition of seven storeys above the latter, which was occupied by a large force of employees during the construction of the new building.

Column and Girder Construction.

As the foundations and columns of the old buildings were not designed for additional storeys, the latter are carried by new columns situated close to the old columns in the side walls of the old building, with foundations on rock. In each of two rows there are five of these columns 250 ft. high. They project 100 ft. above the top of the old roof and 18 ft. above the upper floor of the new building. Plate girders 8 ft. 4 in. deep span the width of the existing building, and are field-riveted to deep gusset plates at the tops of these columns, and from them the seven upper floors added to the old building are suspended.

Pairs of 40-ton girders 62 ft. long connect the three columns nearest the front of the building on one side to the corresponding columns on the opposite side, and receive vertical riveted suspenders connected to diaphragms joining the webs of both girders. In the rear of the building, on account of the space provided on one side for an exterior light shaft, the two rows of wall columns are only 43 ft. apart, and are connected by single 30-ton plate girders 43 ft. long.

Erecting the Girders.

For erecting the girders there was employed a special steel stiffleg derrick of 80-ton capacity, having a 71-ft. boom. It was located on the ninteenth floor of the new part of the building, where it commanded the street and the entire area of the old building. All the eight girders, weighing together 300 tons, were sent in one shipment on a lighter from the bridge shop on Staten Island to the foot of Fifteenth Street, East River, New York City, and thence transported in one day about one mile to the site, on a special truck drawn by thirty-six horses. At the site the girders were unloaded by the derrick, which was about 237 ft. above the kerb.

In handling the girders, special steel double yokes were clamped to the girder on opposite sides of the centre of gravity and pin-connected to the derrick hoisting tackle. A manila tagline was attached to each end of each girder to keep it clear of the front of the building. These lines were operated by hand and snubbed to keep them always taut.

After the first girder was hoisted and set, work was stopped on account of rain. The next day five girders were set, while the remaining two were placed two days later. The eight girders were hoisted and set in about twelve hours' actual working time, the last one being hoisted and set in twelve minutes.

After hoisting, the girders were landed on shelf angles provided on the large gusset plates at the tops of the columns, and were service-bolted in position to secure them until the field rivets could be conveniently driven. The erection was accomplished without accident and without noticeable vibration or evidence of distress in derrick or building. Although the unsupported tops of the columns which received the girders projected 18 ft. above the upper floors, their alignment and accuracy were such that no manipulation was requ
make up the connections between c
and girders.

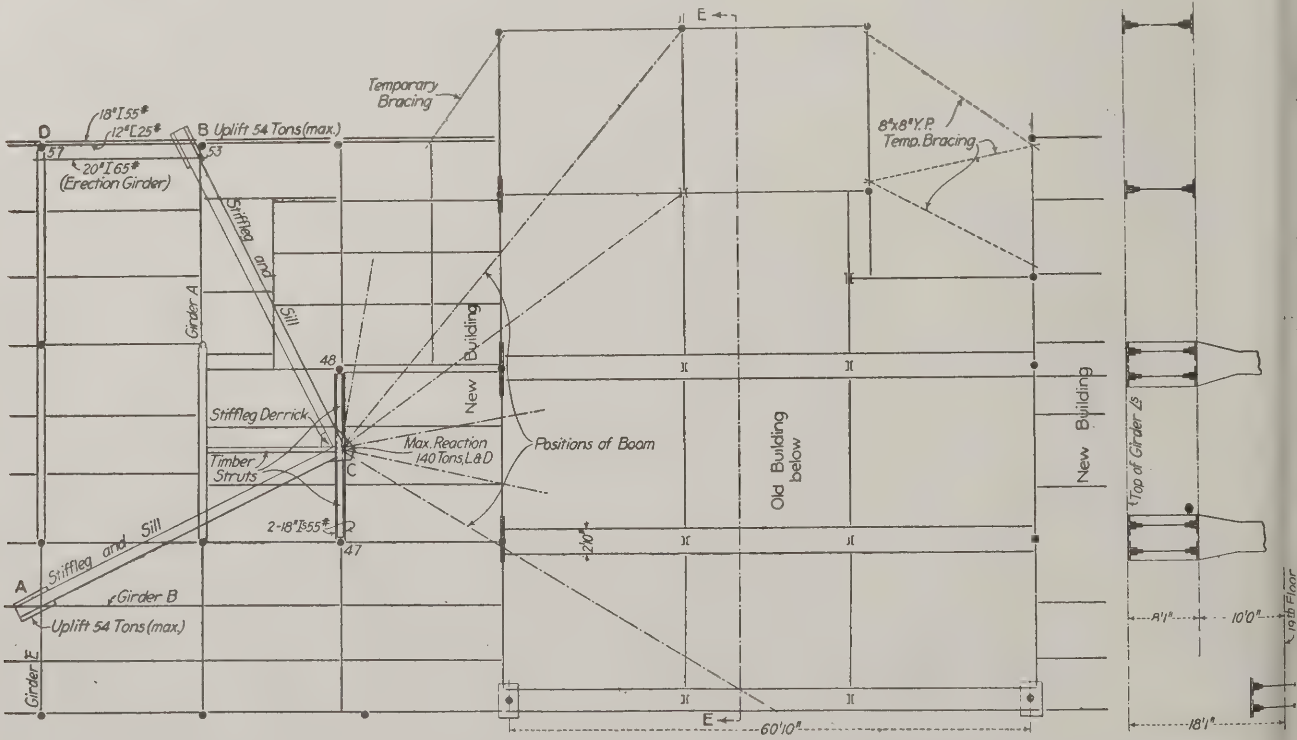
Derricks and Hoisting Tack

The derrick, whose capacity was
weighed 45 tons, and was rigged
thirteen-part hoisting tackle, rove
5/8-in. ploughsteel cable and a ni
topping lift of 1-in. cable. The l
cable was 4,000 ft. long and was wo
an extra large drum of the 12-in.
wood double-drum hoisting engi
stalled on the eighteenth floor. At
ginning of the hoisting of the
girders, the steam pressure re
90 lb., but soon dropped to 60 lb.,
was maintained throughout the l
period. Under maximum load the
reactions were 140 tons at the foot
mast and 54 tons uplift at the fee
stifflegs.

The derrick was operated with
boom for unloading and storing the
and was boomed out 62 ft. for h
The derrick mast was supported
between columns on the regula
beams, which were reinforced by a
A-frame and shores, distributing t
through the lower floors. The
were anchored to the framework n
columns with sufficient connections
heavy uplift.

The derrick sills and the foot of t
were connected to an irregular ho
base plate about 4 ft. wide and 4 f
through which the maximum verti
of 140 tons was transmitted to a 6 b
grillage, made of two tiers of 12 b
timbers supported on a temporary
A-frame that in turn rested on
wooden shores, distributing th
through the seventeenth, sixteenth,
teenth floors without transmitting
it directly to the eighteenth floor.

The 122,000-lb. horizontal comp
the stresses in the inclined posts o
frames was taken by six parts o
cables provided with turnbuckle
ments and engaging eyebolts
through the vertical flanges of the
angles. This arrangement served
an extended base to the derrick su



PLAN SHOWING ARRANGEMENT OF STIFFLEG DERRICK WITH 71 FT. BOOM ON FRAMING ON NINETEENTH FLOO

oute the load through fixed connec-
and to stiffen the steel framework
st erection stresses and vibration.

Anchorage and Stifflegs.

lower ends of the stifflegs of the
derrick were pin-connected to sills
of two channels with horizontal
latticed and reinforced at the con-
n by a vertical web or diaphragm.
sills were anchored at their stiffleg
ctions to the permanent framework,
connections designed to resist the 54-
plift. One of them was supported
wall girders at point B, and on an
on girder made of a temporary 20-in.
n resting on and transverse to per-
nt interior girder A. The sill was
cted to the erection girder and to the
girders by four $2\frac{1}{4}$-in. vertical screw
with double nuts which engaged the
anges of the sill and yoke angles
ng on the bottom flanges of the
s.

erection girder was secured to the
or girder by a similar yoke screwed
against wooden bearing pieces. Posi-
ad at this point was provided for by
tical shore supporting the bottom
of the transverse girder, and wedged
ring on the floorbeams of the seven-
and eighteenth floors. The oppo-
nd of the erection girder rested on
p flanges of a pair of permanent in-
girders transverse to it, and was
d to them by lashing with a steel
The erection girder was also
red, at its connection with the der-
sill, by vertical steel cables passing
en the vertical connection rods and
ed to one of the permanent steel
ns below its eighteenth-floor connec-

other stiffleg was anchored at point
a yoke with four vertical screw rods
louble-nut bearings, two of them on
p flanges of the sill, and two on a
f yoke beams resting on the top
s of the supporting permanent beams
rders. One of the rods through the
girder sill had double lower nuts bearing on the bottom flanges of the yoke girders, and all of the other rods had double bottom nuts bearing on saddle pieces crossing the bottom flanges of the permanent beams and girders. The end of the sill projected beyond the yoke connection and was additionally anchored by cables.

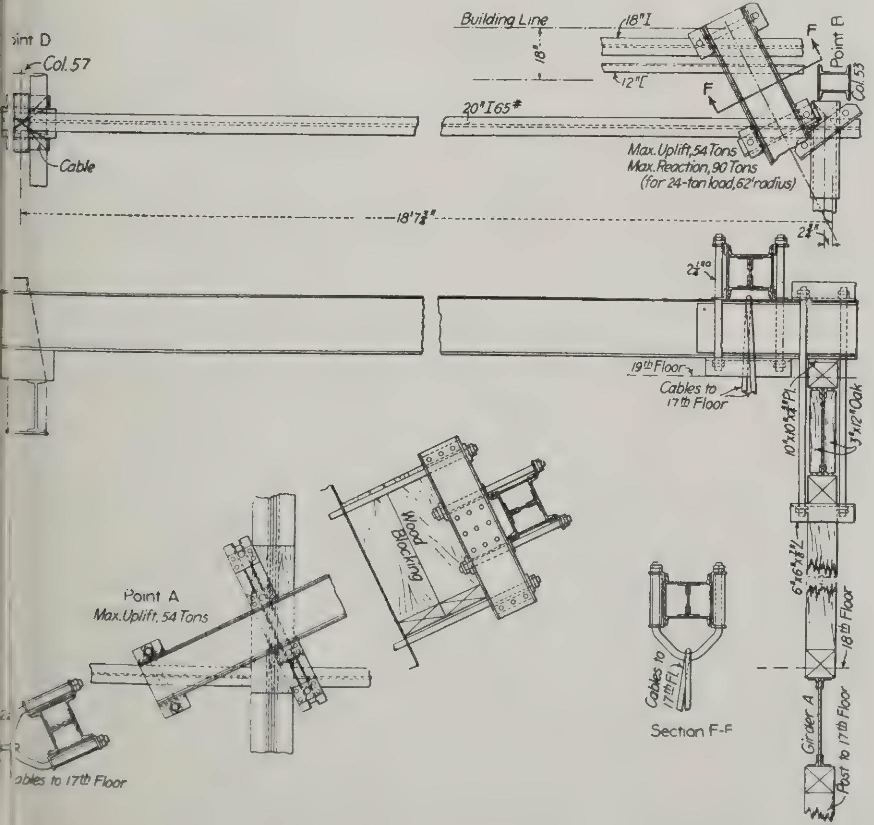
Hoisting Yoke for 40-Ton Girders.

The 40-ton girders were connected to the hoisting tackle by a double yoke concentric with the centre of gravity. This yoke had two pairs of vertical screw rods just clearing the girder flanges, and provided with double top and bottom nuts. The bottom nuts took bearing on the lower flanges of saddle beams made of two channels riveted together back to back, with space between the webs to receive the rods. The upper flanges of the channels engaged oak cushion slabs countersunk to clear the rivet heads in the bottom flanges of the girders.

COMPETITION.

Municipal Buildings, Stepney.

At their next meeting the Stepney Borough Council will be asked to approve a draft advertisement inviting designs for a competition in connection with the new municipal buildings in Arbour Square. The suggested accommodation in the new buildings includes a Council Chamber, six committee-rooms, Mayor's parlour, etc., and office accommodation for the Council's staff. Mr. Henry T. Hare has been appointed to act as assessor of the designs. Prizes of £100, £75, and £50 will be offered for the first three. If a building contract is not entered into within twelve months, the architect whose design is selected will receive £300 on account, and if the building scheme is abandoned or indefinitely postponed a further £300 in full discharge.



DETAILS OF ANCHORAGES AT LOWER ENDS OF STIFFLEGS.

CONCRETE IN THE EDISON FACTORY FIRE.

In the first hasty accounts of the fire which on December 9 last destroyed a large part of the plant of Mr. Thomas A. Edison, at West Orange, New Jersey, it was erroneously stated that the concrete buildings, supposedly fireproof, had been destroyed, thus—so it was intimated—failing to justify the reliance placed upon them. These accounts were very inaccurate. The seven concrete buildings attacked still stand, while about them are the tangled and hopeless ruins of one frame and six brick buildings.

On account of the highly inflammable character of the contents of the building in which the fire started, the progress of the fire was unusually rapid, and so intense that the adjoining buildings, the box and cabinet factory (a three-storey frame building) on the west and the phonograph assembly department (in a concrete building) on the east were soon in flames. These structures also contained much inflammable material in the way of wooden phonograph cases and packing boxes. The first, or ground floor, of the assembly building was used by the shipping department, and was well filled with finished machines in packing cases.

With this start, the fire rapidly continued its spread both eastward and westward. Five small buildings at the east and the group of small buildings at the west, these including the famous laboratory in which Mr. Edison's investigative work is planned and largely done, were saved.

Five chief reasons can be assigned for the extent of the disaster and the rapidity of the progress of the fire: 1. The highly inflammable character of the contents of the buildings. 2. The inadequacy of the water supply. 3. The fact that the window openings were fitted with wooden sashes and plain glass. 4. Lack of fire walls. 5. Lack of automatic sprinklers.

The well supply was rendered useless in the early stages of the fire, owing to the forced cutting off at the power house of the current for the pump motor.

Condition of Concrete Buildings.

Chief interest in the fire for the structural engineer centres on the condition of the concrete structures.

With the exception of certain sections, the concrete buildings appear to be in good condition. Without exception they are standing, and the salvage in contents, damaged but not wholly destroyed, will be very large. This is an important factor in considering the performance of these structures in fire. Moreover, in certain structures completely gutted in the upper storeys but little damage was done in the first floors. This is in marked contrast with the brick structures, where the collapse of the buildings resulted in a very high contents loss.

In floors occupied by machinery working on metal parts, the concrete was not seriously injured. Columns spalled here and there, without, however, exposing the reinforcing rods, and occasionally, but not often, the beams also spalled. In general, the more destructive effect of the fire upon the columns than on the beams is noticeable.

The workmanship appears to have been of the best. Trap rock was used as the aggregate in most of the buildings, gravel in the others. There is no apparent difference in their fire-resistance. The effect of the fire on the columns extended generally to a depth of about $1\frac{1}{2}$ in., this being the usual depth of spalling. Except where the fire was very severe the concrete did not come off and the rods were not exposed. However, longitudinal cracks are found on many of the columns. Where the fire was hot, cracks close together are found across the bottoms of beams. Such cracks were rather to be expected, since the beams and slabs were not cast monolithically.

The column reinforcing consisted only of four vertical rods, without horizontal ties or hooping. It is held, therefore, that the steel was thus inadequate to prevent shearing failure.

The assembly department building seems to have suffered most. While the four upper floors are in good condition, the ground floor of the wing, used by the shipping department, is in very bad condition. The room was piled high with phonographs in wooden packing boxes, making a very hot fire.

Serious damage in the west wing was due to an exceedingly hot fire on the third floor. Twenty tons of wax was stored there, and the result is shown by the destruction of four columns on the south wall line, three columns on the north wall line, and one in the interior. That this wing did not collapse entirely is a marvel. There is a deflection at the interior column of at least 15 in., and the beams and girders running out therefrom are badly cracked. Below this floor, the west wing, as with the rest of the structure, is in good condition. On the whole, the fire in this building seems to have been very hot. There was considerable wood used in boxes holding finished and partly finished products, while in many parts were wax and also celluloid for cylindrical phonograph records.

It is stated that wherever serious damage was done streams were directed on to the concrete after it had become heated. This statement applies to the severe local damage. It is the belief of the officials that despite the great heat at certain points there would have been very little damage had the streams not been used on the concrete structures, or at least not directed at them after they had become very hot.

Three specialists employed have reported that 87½ per cent. of the concrete construction is in first-class condition. and the work of restoration was promptly put in hand.

Reinforced Concrete in the New Cunard Building at Liverpool.

The new building now in course of erection for the Cunard Steamship Company at Liverpool, of which an elevation and plan were published in last week's issue of this Journal, occupies the site of the old George's Dock, facing the river by the Landing Stage, the bottom of which was some 34 ft. below street level. The concrete foundations are being taken down to the rock, which at one end was 14 ft. below the bottom of the dock. The structure of the building, including the floors and the roof, is of reinforced concrete, carried out by The Trussed Concrete Steel Co., under the superintendence of Mr. B. L. Hurst, A.M.I.C.E., A.M.I.M.E. The facing will be of Portland stone, supplied by The United Stone Firms, Ltd., the rusticated portions being of Roach stone, the rest of Whitbed. The building is being carried out by Messrs. Holland and Hannen and Cubitt's, Ltd., from the designs of Messrs. Willink and Thicknesse, FF.R.I.B.A., of Liverpool, with whom Messrs. Mewès and Davis, of London and Paris, are associated as consulting architects. The building covers an area of about 330 ft. by 200 ft.

STRENGTH OF RIVETING TO COLUMNS.

With reference to the article on this subject which appeared in our issue of November 4, page 290, a correspondent (S.B.) writes: "I would point out an error in Figs. 2 and 3. The sketch is not consistent with the calculations. The moments for the beam-group and the column-group should have the same direction. The vertical forces on the column-group should be directed upwards, and not as shown. I take it the author intends to prove that the outer moment-beam reaction × the eccentricity = Σ resisting moments, both moments acting upon one and the same body (the plate). The reaction 22^T should be placed at the centre of the group, and not as shown.

"On page 290 it is stated that $B = F_5 = F_7$. This is by no means clear.

"On page 291 is stated:

$I = \Sigma = A_r\ 428.2$; if d = Polar distance to rivet.

Should not this read:

$I = A_r \times \Sigma\, d_n = A_r \times 428.2$?"

Our correspondent's letter was forwarded to the author of the article, who replies as follows:

The position of load in Fig. 2 of 22 tons shown acting through the line of rivets 1-2 2-1 is incorrect; it should have been shown acting through the group centre.

Your correspondent reads at the foot of page 290:

"$B = F_5 = F_7$."

He should have read thus as originally stated:—

"Then, stress on rivets r_5 and r_7 due to bending moment B *is equal to* $F_5 = F_7 = \frac{B}{M}$"

This should be quite clear, because $F = \frac{B}{M}$ and the rivets r_5 and r_7 are those farthest from their group centre and consequently those mostly stressed.

Further "S.B." writes that the statement at the top of page 291,

"$I = \Sigma = A_r\,.428.2$ (which might have been more correctly written $I = \Sigma = 428.2\,A^r$) should be read

"$I = A_r \times \Sigma d_n$."

In this he is not correct, because $I = Ag^2$; therefore his form of the equation should read $I = \Sigma\,(A_r\, d_n{}^{2}\cdot\cdot)$

$= A_r \times 428.2$.

Considering rivet r_1 and calling the distance from horizontal axis passing through the group centre, to centre of rivet — d_1, also the distance from vertical axis passing through the group centre, to centre of rivet — d_{11}, we have that square of polar distance, $d_n{}^2 = d_1{}^2 +$ Therefore polar I for rivet $r_1 = A_r$ (d $d_{11}{}^{2}\cdot$) See Fig. 4. This is the me employed in making the calculation M for the two rivet groups.

Your correspondent also states "I it the author intends to prove that outer moment — beam reaction × eccentricity = Σ resisting moments."

This is quite correct. The follo proof is, I think, reasonable:

Take a simpler connection of the s order as shown in the accompan diagram (Fig. 5).

Assume the connection to have se slightly under the load, so that the of the connecting plate which was or ally X X has now taken up a pos $X_1 X_1$ with an angular change in pos of α.

Then if the assumption "that t would be no appreciable deformatio the connecting plate strained as a be is made as in the examples worked in my article, all the rivet holes in plate in both groups A and B will the same angular change in pos about their respective group ce relatively to the positions of the holes in web of beam and stanc respectively (which latter were original positions of the holes in connection before being subjected t load).

Therefore the stresses in the rivets to bending moment B are proportion their respective distances from g centre, and it seems reasonable t author to calculate these stresses in manner originally stated, that is

$$B = f\,M = f\,(M_A + M_B)$$

where M_A and M_B are the respe section moduli for the two rivet g A and B.

The two figures (2) and (3) are sli misleading. It should have been s that the forces shown acting on riv and 3 (Fig. 2) and rivets 1 and 4 (F are the forces imposed upon the by the web of the beam. Similarl forces shown acting on rivets 5 a (Fig. 2) and rivets 7, 10 and 13 (F are the forces imposed upon these by the connecting plate.

The main point of my article, *i.e* computed values of the stresses o rivets in the connection, does not se be in question. It would, however, considerable interest to many read your invaluable journal if your spondent would suggest some method of calculation for comparis results.

W. Cyril Cock

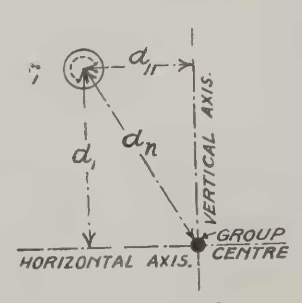


FIGURE 4.

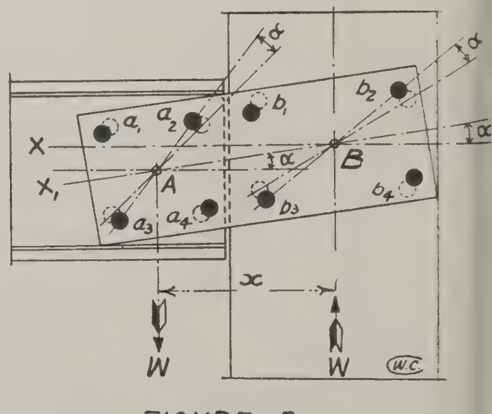


FIGURE 5.

HE FATE OF BOSWELL'S HOUSE.

following letter has been published in "The Times":—

United Grand Lodge of England, which owns the two
known as Nos. 55 and 56, Great Queen Street, and pre-
g to that street a united façade divided into six bays by
ilasters, has, we understand, decided to demolish the
of this building. This conclusion has been arrived at in
f a letter of protest signed by Mr. Reginald Blomfield,
as President of the Royal Institute of British Architects;
ailey, as acting-chairman of the National Trust; Lord
ord and Lord Ferrers, as hon. secretaries of the Society
Protection of Ancient Buildings; Lord Curzon and Lord
uth; and further, in spite of the fact that the district
or has stated that, although he is unwilling to approve
corporation of the existing front in the new buildings, as
lesigned and proposed to be erected on the site, he is
willing to consider any other proposal.

the undersigned, as officially representing the societies
below, desire to state publicly that we see no structural
why the front should not be incorporated in the new
ng, and that the United Grand Lodge of Freemasons,
it adhere to its decision to demolish this front, will have
led London of a work of extreme value and interest.

are aware that the United Grand Lodge has offered the
to the London County Council for re-erection elsewhere,
though we are glad that this concession should have been
we feel that the mere saving of fragments is a poor
nsation for the loss to London of so characteristic an
le of the domestic architecture of the 17th century, still
ing its original site, and so valuable a page of London
—a page never to be replaced—and we especially regret
at a moment when the civilised world is deploring the
ction, by savage violence, of so many beautiful and inte-
buildings, private owners in this country should add,
avoidable degree and with whatever object, to that tale

are, Sir, yours faithfully, Edward J. Poynter, President
Royal Academy, in support of the above letter issued by
ciety for the Protection of Ancient Buildings; Arthur
, President of the Society of Antiquaries; Thos. Okey,
r of the Art Workers' Guild, 1914; Crawford and Bal-
Hon. Secretary of the Society for the Protection of
nt Buildings; Plymouth, Chairman of the National Trust;
n of Kedleston, President of the Committee for the Survey
Memorials of Greater London. The Society for the Pro-
of Ancient Buildings, 20, Buckingham Street, Adelphi,

A. R. Powys, secretary of the Society, answering some
sms by Sir Edward Letchworth, addresses himself to the
ing points:

t, the society recognises the difficulty of owners possessing
c buildings in valuable areas and, in pleading for their
on, wishes to avoid interference with private rights.

nd, although the Grand Lodge determined in 1899 to
y the house in question, no information of this decision
d this society until November, 1913, upon which my
ittee immediately took action and has not allowed the
to drop since then.

d, the society possesses a letter of December 13, 1914,
he district surveyor, in which he says, "I refuse to sanc-
he proposal made (not *any* proposals made), but I am
to consider any others." If the Grand Lodge does not
s this information it must be because it has not taken the
e to ask the district surveyor whether it was to the par-
suggestion he objected or to any possible scheme for
orating the existing front. As regards the practical possi-
of retaining the front, my committee, which has many
nown architects among its members, knows that this work
only a practical, but a simple operation.

appears to my committee that the Freemasons never
d the importance to the nation and to architecture of dig-
old buildings like these in Great Queen Street, nor has
ody realised what a powerful feeling there is to-day for
retention, not only among the educated classes, but in a
efined way through the whole mass of the people. It
to have thought that the protest made by this society
y represented its 530 members.

re is one last point which deserves notice. It is not for
nental reasons that this society has pleaded for these
s, but because of their value as concrete history. At the
time, although the society is not sentimental over the case,
s not ignore the fact that sentiment is an important force
conduct of human affairs, and, although not in fashion
, if rightly directed it is a force both useful and desirable.
at is patriotism if not sentiment? Sentiment founded on
e in the deeds of our ancestors.

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The Tewkesbury Rural District Council invite TENDERS for the ERECTION of SIX COTTAGES at ASTON CROSS, Ashchurch.

Drawings and specification may be seen at the Office of the Architects, Messrs. PROTHERO, PHILLOTT, & BARNARD, 31, Promenade, Cheltenham.

Bills of quantities and form of Tender may be obtained from the ARCHITECTS on payment of 10s. 6d., which wil be returned on receipt of a bona-fide Tender.

The Council do not bind themselves to accept the lowest or any Tender.

The Contractor will be required to enter into a bond, to be approved by the Council, in the sum of £250 for the due performance of his Contract.

Tenders must be delivered to the undersigned before TEN a.m. on the 10th day of FEBRUARY, 1915, and be endorsed "Ashchurch Tender."

H. A. BADHAM, Junr.,
Clerk to the Council.

Tewkesbury.
15th January, 1915.

Appointments Vacant.

6d. per line.

ARCHITECT'S Assistant (Lancashire); thoroughly competent; must be experienced in cotton mill construction; write, giving particulars, age, salary required, etc.—Box 9133.

COUNTY of London.—The London County Council invites applications for the position of instructor in handicraft (wood-carving and art metal work) at the South Grove School for elder mentally defective boys, Mile End Road, E. Salary £100 a year, rising to £175 by annual increments of £5, subject to a proviso that the salary shall not rise above £155 unless a satisfactory report as to qualifications and past experience is received. Applications must be on forms to be obtained, with particulars of the appointment, by sending a stamped addressed foolscap envelope to the Education Office, London County Council, Education Offices, Victoria Embankment, W.C., to whom they must be returned by eleven a.m. on Wednesday, 10th February, 1915. Every communication must be marked S.S.7 on the envelope. Canvassing, either directly or indirectly, will be held to be a disqualification for appointment.—Laurence Gomme, Clerk of the London County Council. Education Offices, Victoria Embankment, W.C.

WANTED for Builder's shop in large Midland town, energetic and reliable foreman (carpenter and joiner) one accustomed to executing work at competitive prices, good manager of men, and thorough knowledge of the trade; apply with references, stating age, qualifications, and wages required.—Box 9135.

Miscellaneous.

6d. per line.

BUILDER'S Business for Sale.—In consequence of the division of the estate of the late Mr. William Woods, of Hartford, Cheshire, the executors are willing to sell this old-established and successful business as a going concern; one or two members of the family will, if desired, remain interested in the business.—For particulars, etc., apply Chas. Healey, Accountant, 6, King Street, Warrington. 9141

BOOKS.—Books on Building Trades, Engineering, Educational, Literary, Technical, and all other subjects; second-hand at half prices; new at 25 per cent. discount; catalogue free; state wants; books sent on approval; books bought; best prices given.—W. and G. Foyle, 121-123, Charing Cross Road, London, W.C.

TO ARCHITECTS COMPETING.
SCHEMES & ESTIMATES FOR ENGINEERING WORK.

(Lighting, Heating, Ventilation, and Sanitation), and Architectural Metal Work, supplied free of charge of **STRODE & CO., Ltd.,** 48, Osnaburgh Street, London, N.W.

SECOND-HAND Optical Mart
For the Purchase and Sale of
LEVELS, THEODOLITES, DRAWING INSTRS.
—Clarkson's, 338, High Holborn, London, W.C. (Opposite Gray's Inn Road).

ARCHITECTS and Surveyors.—Partnerships.—Successions—or Amalgamations. For introductions to gentlemen with experience and capital available to purchase, or for particulars of partnerships and practices for sale, town or country, apply to Goodchilds, 29, Southampton Buildings, Chancery Lane, or 329, High Holborn, W.C. The recognised Partnership Agents for the Profession. Mortgages negotiated.

THE Marvel of the Age in Woodwork Catalogues.—Owing to the enormous expense we have incurred in issuing the most up-to-date list which in our estimation can be taken as a standard list in preference to any list in the world, fully illustrated and priced, 286 pages, we have decided to ask our friends to send 1s. 6d. (export 3d. extra), and we will send a copy to any part of the world, together with four-fold brass-jointed boxwood rule; will return money in exchange if not worth 2s. 6d. to you.—C. Jennings and Co., 981, Pennywell Road, Bristol.

Miscellaneous—*continued.*

FOR Sale, Fletcher's History of Archit
Architectural styles, Rosengarten; E
Building Contracts, Moore's Sanitary
neering; new condition; also three-screw
level; cheap. (Yorkshire.)—Box 9142.

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nesses, best quality and full measure
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ten and boards; lowest wharf prices.
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cheap, and accurate.—Address, "T
Typewriting Office, 65, Marsham Street,
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9d. per line.

CITY OF BRADFORD.
COMPETITION.

The Bradford Corporation invite COM
TIVE DESIGNS for the RE-PLANNI
STREETS in the Central Area of the
Bradford. Mr. Reginald Blomfield, R.
act as Assessor. First prize £500, secon
£300, and third prize £200.

Particulars may be obtained on appl
to the undersigned, accompanied by a
of £1 1s. 0d., but in case the particula
plan are returned within ten days af
ceipt thereof then the deposit of £1 1s.
be returned

FREDERICK STEVENS, Town
Town Hall, Bradford,
19th November, 1914.

Auction Sales.

9d. per line.

To Contractors, Builders, and othe
Order of the Metropolitan Tunnel and
Works Co., Ltd., on account of comple
Contract.—Messrs.
FULLER, HORSEY, SONS, & CASSEL
instructed to SELL by AUCTION, in LO
the DEPOT, Didsbury, near Manchest
THURSDAY, FEBRUARY 4, 1915, at EI
o'clock precisely,
CONTRACTOR'S PLANT, MACHINERY
MATERIAL,
including eight Reavell's quadruplex ai
pressors, each coupled to 35-h.p. variable
motor, 410 volts; three electric winches
12-h.p. d.c. motors, four electric centrifug
Boreas pumps, Crompton's auto-con
480/50, two 3-h.p. d.c. motors, 440 volt
Pulsometer and diaphragm pumps, tw
loco steam cranes, six vertical boilers,
blowers, five ¾-yd. skips, quantity wroug
tanks, leather belting, india-rubber hose
4-in. and 6-in. wrought-iron pipe, 1,200 f
steel air pipe, 600 ft. 6-in. cast-iron pipe,
piping and wire, mild steel scrap, qu
deals and pitch-pine baulk and half ti
and other effects.

May be viewed three days prior to SAL
Catalogues had of Messrs. FULLER, HO
& CO., 11, Billiter Square, London, E.C.

Without Reserve.—337, NORWOOD ROA
—Re R. HERBERT and Co., Ltd.—By
of the Receiver, G. E. Corfield, Esq.

FRYETT, WHITE, & CO.

Will SELL on the PREMISES, as abo
The STOCK-IN-TRADE of a GASFI
ELECTRICIAN and DECORATOR,
comprising quantity gas and electric fi
radiators, electric fans, shades and
brass goods, fenders, gas mantles, flex
shop and window fittings, two counters
blinds, showcases, etc., painter's tool
builder's trucks, two ladders, nine pairs
and quantity effects, which will be SO
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On view day previous and morning of
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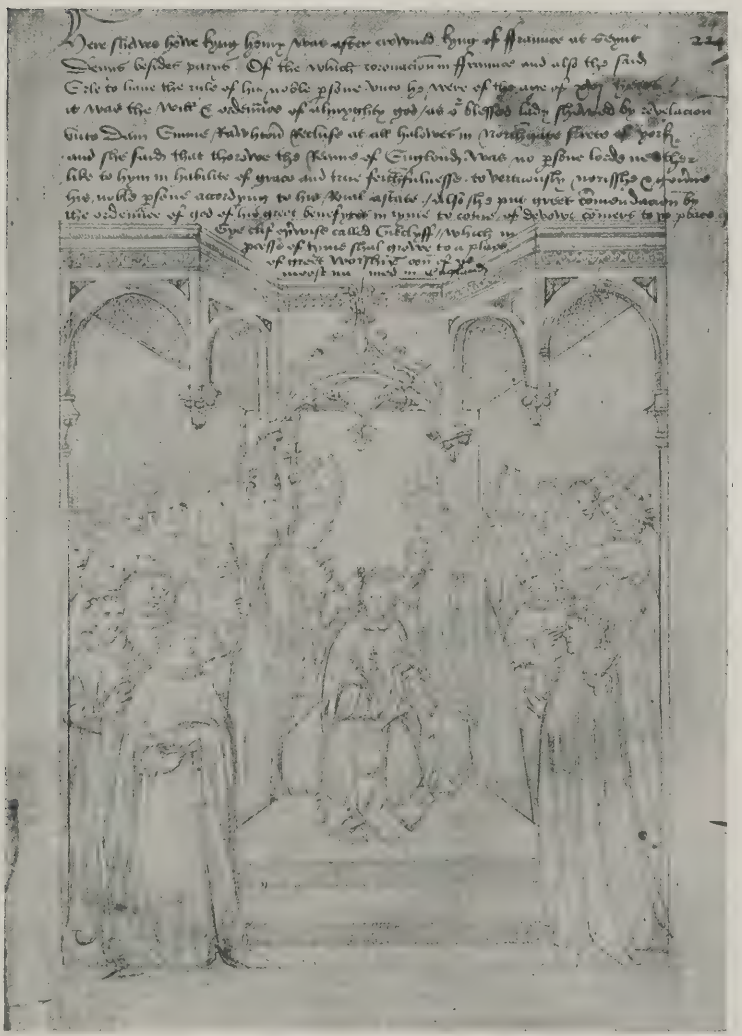
four House, E.C

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, February 10, 1915. Volume XLI. No. 1049.

No. 122.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 10, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1049.

EDITORIAL.

IN the first of a series of four lectures on Greek art, delivered at the Royal Academy last week, Sir Charles Waldstein asked himself a question to which, he said, the answer would form the subject of the other three lectures. This pregnant question, as reproduced by the reporters, was: "How is it that Greek art has remained so persistently the foundation of taste?" Whether or not that was the exact wording used by the lecturer is of no great importance, except perhaps to the jesting faddist who would ask, "What is 'taste'?" and would not stay for an answer; for the meaning is sufficiently plain, and the fact it implies is incontrovertible. No one has the hardihood to deny that it is to the ancient Greeks we must go for all that is purest and noblest in form, proportion, and composition, whether in architecture or in sculpture, or in the figured fictile ware of which the shapes and patterns are the supreme exemplars for all time.

* * * *

Pending its further elaboration, Sir Charles's short answer to his own question—that the prepotency of Greek influence arises from the fusion of Naturalism and Idealism—will hardly provoke controversy, except possibly from a few Goths who deny the Naturalism because it is idealised, or, as we should say, refined; and the Idealism because it is naturalised, or, as we should say, rationalised by being kept free from excess. For it is just this delicate balance—or, rather, this just apportionment—of intellectual and emotional elements, that makes Greek art the norm to which constant reference is necessary for the correction of errant tendencies. A little more, or a little less, either of Naturalism or of Idealism, does not vitiate the principle. An exact copy of a Greek temple put up in Fleet Street for service as a bank, a church, or a picture palace, might seem to be an anachronism to those aware of the associations it connotes, but, at the worst, it would be immeasurably less incongruous than the mediæval law-courts that seem to bandy gross personalities with the Griffin usurping the site of old Temple Bar. But exact copying is not art, and we take it that the constant reference to Greek models, or to such models as are infused with the Greek spirit, is primarily for inspiration, and secondarily for guidance in principles that, while eternal, are nevertheless flexibly adaptable to time, place, the temperament of the architect, and other contingent conditions. Sir Charles Waldstein, of course, is not to be held responsible for this slight extension of his predicate beyond the scope of his lectures.

* * * *

To think of Greek sculpture is to recall the Parthenon, to speculate anew and vainly as to whether Ictinus was really the architect, or only the master-builder working to the designs of Phidias, and to remember its vicissitudes in war and in peace—how its smaller predecessor begun on the same site was destroyed by the Persians B.C. 480 before it was m
more than half-built; how the later building, firs
pagan temple, then a Christian church, and afterwa
a Turkish mosque, was bombarded in 1687 by
Venetian general Morosini; how the Turkish garri
who took possession of it in 1668 used some of
precious marbles for lime-making, or built them
barrack walls, or, for a trifle of *backsheesh*, allo
visitors to bear away portable fragments. L
Morosini should be too hastily admitted to the exal
category of the all-highest super-kultured of
twentieth century, it must be remembered that his
is against him, and that, indeed, he is not otherw
qualified by being entirely destitute of excuse; for
Parthenon, when he bombarded it, was be
"defended" by troops, and the shell which did
damage, destroying the roof and a great portion of
sides, was one which exploded the Parthenon pow
magazine.

* * * *

Vandalism of a milder sort is often retorted u
us with respect to the "Elgin Marbles." We
constantly being told that these should not be in
British Museum at Bloomsbury but on the Acrop
at Athens. It is pretty safe to assume that but
Lord Elgin they would now be in neither place. M
of them would have been carried away piecemeal,
scattered instead of collected, while those
remained on the spot would have suffered ser
deterioration, or even perished outright from neg
Casts of sculptures that were left *in situ* are
among the most valuable possessions of the Bri
Museum, because the originals no longer exist,
hence may be legitimately inferred the fate that w
no doubt have overtaken the stones so jealously
served at Bloomsbury that they are now in no w
condition than when they were bought from L
Elgin for £35,000 in 1816.

* * * *

Among the subjects discussed at the annual mee
of the National Federation of Building Tra
Employers, a report of which was published in
issue for last week, one that, while it is of peren
interest, has assumed special importance in co
quence of conditions created by the war, is the ques
of technical education. Wholesale enlistments
caused a shortage of skilled labour that, while it
not be very embarrassing in its present incidenc
likely to give serious trouble in the not distant fu
unless effectual steps are taken to provide agains
Three points were made that are more important
novel. They are—that corporations directly emp
ing skilled labour make no provision for maintai
the supply—that is to say, they do not train app
tices; that there should be created some connect
link between the day-school and the technical sch
and that technical instruction should be given in

rnoon rather than in the evening. None of these ositions admits of dispute. What is needed is erted endeavour to give effect to the second and l, and, as to the first, "by opposing, end it." ompensated absorption of skilled labour is only of a long train of evils set up by municipal trading. orations would be more equitably employed in ucing rather than in consuming skilled labour.

* * * *

cognate subject is the proposed scheme, in which Federation has been asked to co-operate, for the blishment of a Ministerial Department of Industry. a department, if properly constituted, should give ial attention to the ways and means of maintaining fficient supply of skilled labour. We have always hat this, being a matter of national concern, should be left to casual and local and voluntary effort. ellent work for technical education has been done heterogeneous and haphazard way; but unco- nated institutions are apt to collide where they do overlap; or, even worse still, they are divided by ms that should be bridged, as in the case of the gulf een the elementary and the technical school. Now owing to the war, the whole aspect of British stry is being changed, and it is being more vividly sed that technical efficiency must be a vital factor termining the position we are to assume among ations, it is more than ever imperative to mobilise ducational forces, and we trust that the National ration, covering as it does almost the largest field he employment of skilled labour, will earnestly ess itself to the really patriotic task of establishing ical education on a rational and national basis.

* * * *

the very temperate protest which has been pub- d by the Society for the Protection of Ancient lings, with the signatures of Sir Edward Poynter, Arthur Evans, Mr. Thomas Okey, and Lords ford and Balcarres, Plymouth, and Curzon of eston, against the threatened demolition of 55 and 56, Great Queen Street, Lincoln's Inn ls, we most cordially subscribe. These two houses, nting a united façade divided into six bays by five ters, are a characteristic example of the domestic tecture of the seventeenth century; and London t so rich in such relics that she can regard with nimity the loss of any of them. Moreover, this cular building has an historical interest that is ely inferior to its architectural claim; for it was the home of Boswell, the biographer of Dr. son. It is the property of the United Grand ge of Freemasons, who, generously enough, offer to nt the façade to the London County Council for ion elsewhere, but who so far have opposed the gestion to incorporate the existing front in the new ing. So strong a case, so courteously stated, and warmly supported by architectural and public on, should induce the United Grand Lodge to rve this interesting building as a further monu- to the magnanimity and enlightenment of ns.

* * * *

new use for sculptors has been found by Mr. ce Bargrave Deane. In the course of what is "the Slingsby paternity suit," in which the ion raised was whether a certain child was or was e offspring of Mr. and Mrs. Slingsby, his lordship the happy inspiration of calling in Sir George pton, R.A., to examine and compare the faces of an, woman, and child. Sir George's trained eye nly confirmed the judge's observation of a strong resemblance between the child and Mr. Slingsby, urther, detected that both the boy and the lady a marked peculiarity of the left ear. Although dge was careful to state that his finding in favour e child's heirship to the Slingsby estates did not depend wholly upon this incident, he left no possibility for doubt that the sculptor's assistance had been of much value to him. *Experto crede!* If only this excellent judge's recognition of the value of professional assistance were more generally shared, the architect's field of operations would be considerably extended.

* * * *

Experiments in what is called the "direct employment of labour" have so often come to grief that nobody will be surprised at what has happened at the Theosophical Society's building in Tavistock Square. It will be remembered that while the London labour dispute was in progress, the Society resolved to dispense with contractors and to enter into an agreement with the London Building Industries Federation of trades-unionists to complete the work. Much semi-sensational "copy" was made out of the incident by the daily Press, which heralded the adventure with such headings as "Dramatic Stroke in Building Dispute," "Eliminating the Contractor," and so forth. Indeed, there was such an ado that we thought it desirable to ascertain and make public the opinions of those who were best qualified to answer the question that had been freely raised of whether or not it was possible to eliminate the contractor.

* * * *

As we said at the time, we knew quite well that the question was preposterous; and that, in effect, was the general opinion of the leading authorities whom we consulted. Mr. Walter Lawrence, jun., who was then president of the London Master Builders' Association, expressed his belief that work by direct labour would cost from 25 to 30 per cent. more than if carried out by an associated building contractor. That was early in June last, shortly after the Theosophical Society had initiated its experiment; and now it is announced that "The committee became aware in July last that the cost of the building would greatly exceed the original estimate. . . . Soon afterwards the war broke out, sweeping away a large part of the committee's financial resources. Under these circumstances, the committee regret that it will be impossible to reopen the work for some time." And yet the committee "desire to assure the Federation that every effort will be made to recommence the work at the earliest possible moment, and that as far as the committee are concerned nothing will be wanting to make this valuable experiment in direct labour a success." These be brave words, and they afford a curious study in logic and psychology. First we are told of a prospective or actual great excess of cost over the estimate, and immediately afterwards there is talk of "this valuable experiment" being made successful. If there is any compatibility in these statements, it is not discernible; but one can quite understand the committee's anxiety to justify an experiment with which it persisted in spite of authoritative advice that precedent and probability were alike inauspicious of success. So far, the "value" of the experiment seems to consist in providing yet another instance of the unwisdom of attempting to eliminate the contractor.

* * * *

A way out of the ante-war contract difficulty has been indicated by the Local Government Board. It is by no means a solution of the difficulty, but it may serve as a temporary *modus vivendi*. Contractors who had based their tenders on ante-war rates, and were then confronted with a sudden rise in prices, were placed at an enormous disadvantage which public authorities protested, upon the ground of sheer legality, their inability to share. Nevertheless, legality cuts but a sorry figure when it is manifestly opposed to equity and morality, and the authorities who took their stand on it are visibly weakening. Failing relief from an intolerable burden of hardship, some contractors have even contemplated a flat refusal to go on with work which was realising loss where they had a right to anticipate profit; and, somewhat tardily, it is now suggested by the L.G.B. that local authorities should come to an understanding that contracts shall proceed on the basis of the original tenders, but that the actual prices shall be ultimately settled by agreement or by arbitration. It will be surprising if contractors rest satisfied with this arid pronouncement, which, as they will at once perceive, may involve costly proceedings that are more likely to aggravate than to mitigate their losses; unless, indeed, some specially constituted board be formed to deal summarily and inexpensively with questions of account that really ought not to require the ordinary costly and clumsy machinery of litigation or arbitration for their settlement.

* * * *

At its meeting last week, the London County Council failed to obtain the necessary clear majority for its London and District Electricity Supply Bill. On the division there were sixty-one votes in favour of the recommendation, and thirty-one against; a majority of sixty-nine being requisite to carry the measure. Whether this defeat means the total abandonment of the proposal, or only its reintroduction hereafter, with a consequent reduplication of the expenses of promotion, cannot be foreseen; and uncertainty as to the ultimate issue is the most injurious feature of the situation, because it paralyses progress. With their fate in suspense, the various supply corporations are not likely to display over-much energy and enterprise in developing, in extent or in detail, undertakings that may soon pass beyond their interest and control. It is said, for example, that several new generating stations for which sites have been selected would now be in course of construction but for the unsettling effect of the Council's attempt to assume authority over London's electric supply, and thus the building and electrical engineering industries are deprived of opportunities that at the present moment they can but ill afford to lose.

* * * *

There is a suggestion that the Council, having itself withdrawn from the field, or, at least, being temporarily unable to proceed, "would be logical if it considered the wisest and best policy to be abstention from blocking any attempt made in other quarters." With this view we are unable to agree. Municipal monopoly is bad enough, and the failure of the London County Council to achieve it in this instance is therefore no great occasion for lamentation; but any sort of private monopoly would sooner or later become a grinding tyranny, unless it proved itself a singular exception to the natural history of rings and trusts. Nor do the borough councils inspire much confidence as likely to become ideal lighting authorities. As to the proposal to form an *ad hoc* body, one can only admire its daring in face of the example supplied by the Metropolitan Water Board. What would happen if eventually the County Council added to its burdens, which are already "tolerable and not to be borne," the responsibilities of electric-lighting authority, was made rather painfully evident in the debate on the proposal. As in the case of the happily defunct Works Department, every detail of administration would be bitterly fought about on party lines. Evidently the problem is one of serious difficulty, and it is unfortunate that no satisfactory solution is as yet in sight.

* * * *

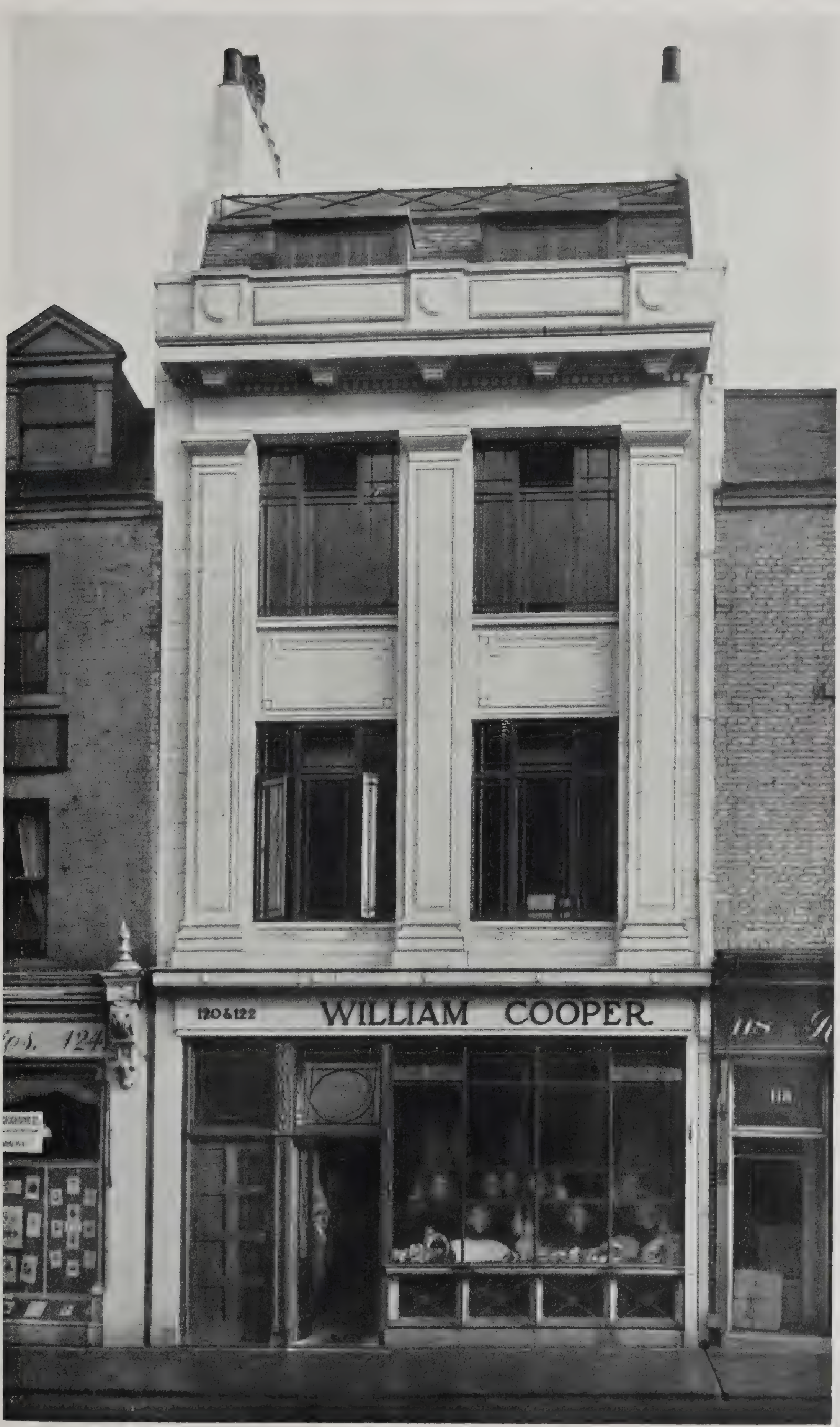
Any great human upheaval, such as war, must profoundly affect the arts, temporary paralysis being succeeded by a powerful rebound, with new impulses, fresh energy, and changed character and direction. Even while peace is but a vague aspiration, thought is being succeeded by action which, though still incipient, foreshadows certain important effects upon archi
ture. Those that are already perceptible are such
might have been easily anticipated. It is natural t
Belgium should turn to Britain for assistance in
rehabilitation, and it was not less probable that Rus
in casting off the German influence which has infes
her institutions and to some extent moulded
architecture, should look to this country for a lar
and healthier inspiration. Russian movement in
direction is already perceptible. It is reported by
British attaché at Petrograd that the Russo-Bri
Chamber of Commerce, at the instance of Profes
Kosiakoff, president of the Russian Architect
Sciences Society, is inviting the co-operation
British architectural societies, and persons connec
with the building and decorative trades, for
purpose of holding at Petrograd, after the war,
Anglo-Russian building trades and decorative
exhibition. This announcement is of good augury
the closer union, for mutual moral and mate
advantage, which is bound to subsist between Ru
and our own country, and we trust that our professio
and industrial corporations, as well as private trad
firms, will do their utmost to promote so promisin
project.

* * * *

That modern architecture and decoration in Ru
have been Germanised to an extent which has bec
so intolerable that the Russians are determined to
themselves from the yoke, is evidence of the in
modesty and impressionableness of the Rus
character, in which respect it is diametrically oppo
to the domineering self-sufficiency of the German m
It has been said of the Russians by a sympath
critic that "their apparent interest in the diffe
systems within their reach points to a natural readi
for architectural achievement which the exis
buildings, interesting and suggestive as they are
not quite verify." Their ancient buildings certa
show great capacity for art, and much of that imp
siveness which comes from massive building of unu
height and expressive outline; while the woo
houses and churches of all the forest-covered part
the country exhibit a power of design not inferio
that of the log churches of Norway or the châlet
Switzerland.

* * * *

In Russian ecclesiastical buildings, Byzan
influence has prevailed since the twelfth century,
the buildings nevertheless show marked nati
individuality in the design, details, and construc
Notable examples of this individuality are found in
Church of the Virgin at Markowo, near Moscow;
the Church of the Trinity and the Virgin at Mos
has over the entrance a remarkable tower which re
the gateway pagodas of India. Peter the Great and
nobles built palaces in the neo-classic style of
period, but the handling was seldom fortunate; ye
cathedral of St. Isaac, at Petrograd, which dates ma
from 1817, ranks third in a great trinity of clas
cathedrals—St. Peter's at Rome, and St. Paul
London being its only superiors. In the new e
which, with the advent of peace, will dawn for R
more expansively, perhaps, than for any other na
engaged in the war, mediævalism, it may be imag
must give place to the Classical spirit of which P
grad Cathedral stands as an adumbration rather
as a monument. While it would be idle to prop
with confidence what direction the new art mover
in Russia will take, it is nevertheless permissib
suppose that the rapid intellectual development w
has marked the past few decades of Russian his
and cannot fail to be enormously stimulated by
active alliance with France and England, will fin
natural expression in Neo-Classical forms, and
adaptation to Russian conditions would prese
most interesting study.



CURRENT ARCHITECTURE (SERIES II.). IV.—SHOP AND OFFICES, NORTHUMBERLAND STREET, NEWCASTLE-ON-TYNE.

PERCY L. BROWNE AND GLOVER, ARCHITECTS.

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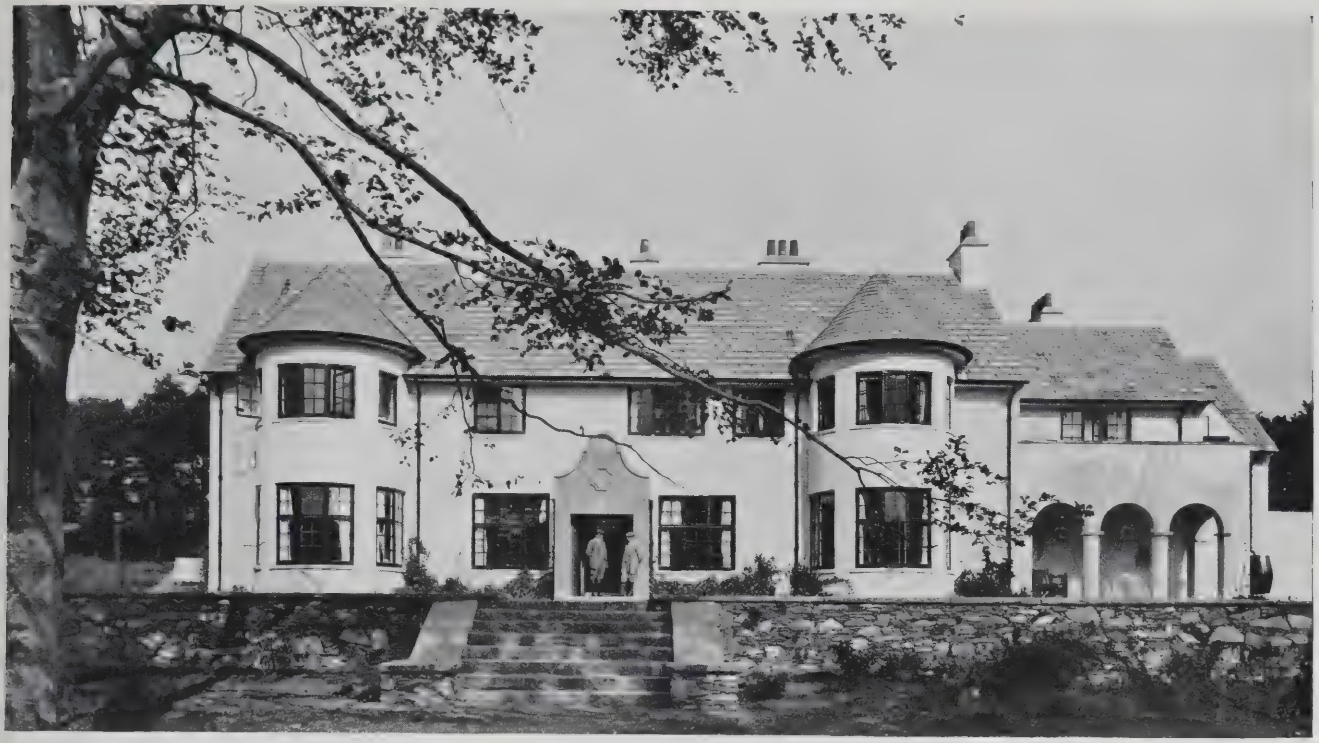
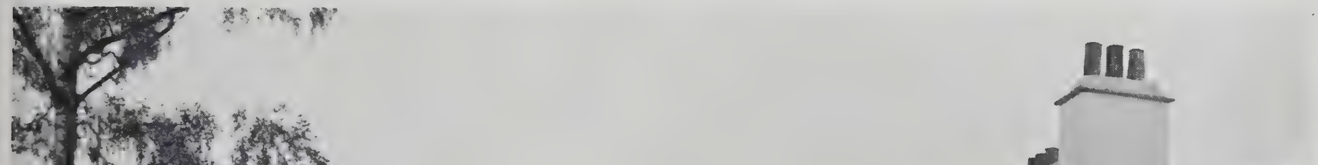
OF THE
UNIVERSITY OF HAWAII



Garden Front.



Entrance Front.

MODERN DOMESTIC ARCHITECTURE (SERIES II.). III.—"DALBEATHIE," DUNKELD, PERTHSHIRE.

MILLS AND SHEPHERD, FF.R.I.B.A., ARCHITECTS.

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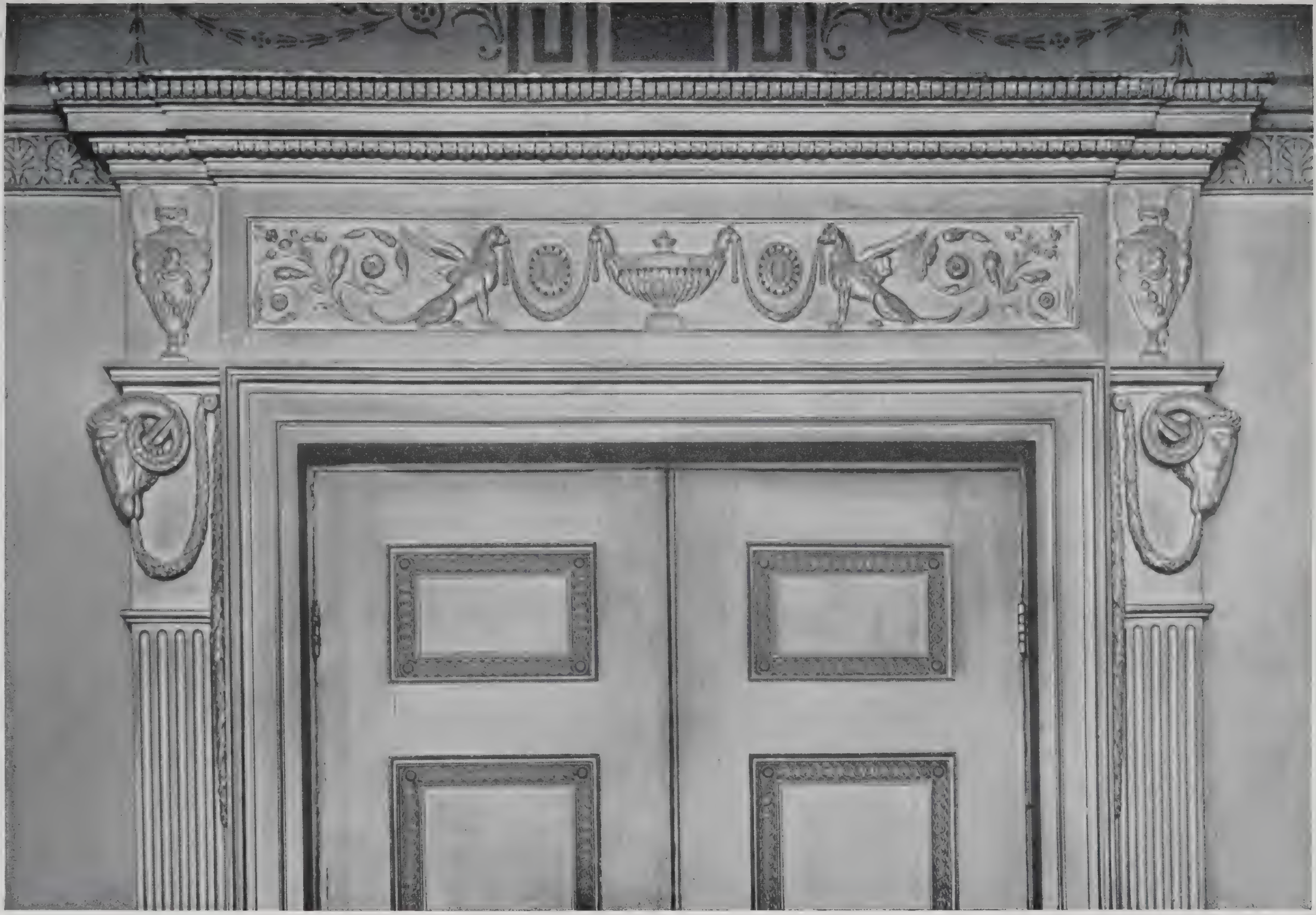

DETAILS OF CRAFTSMANSHIP. VI.—UPPER PART OF DOORWAY IN THE SALOON, BOODLE'S CLUB, LONDON.

ROBERT ADAM, ARCHITECT.

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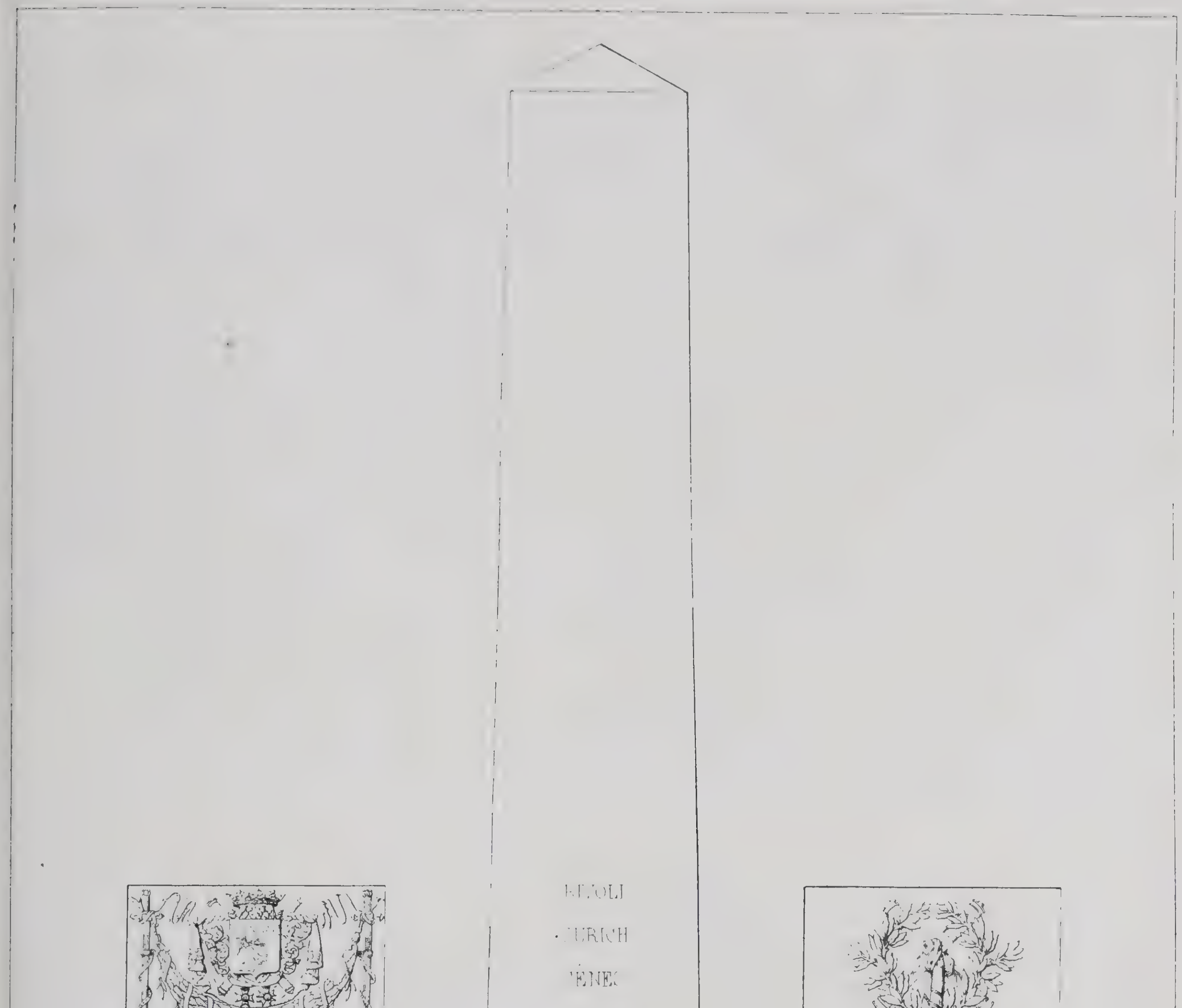
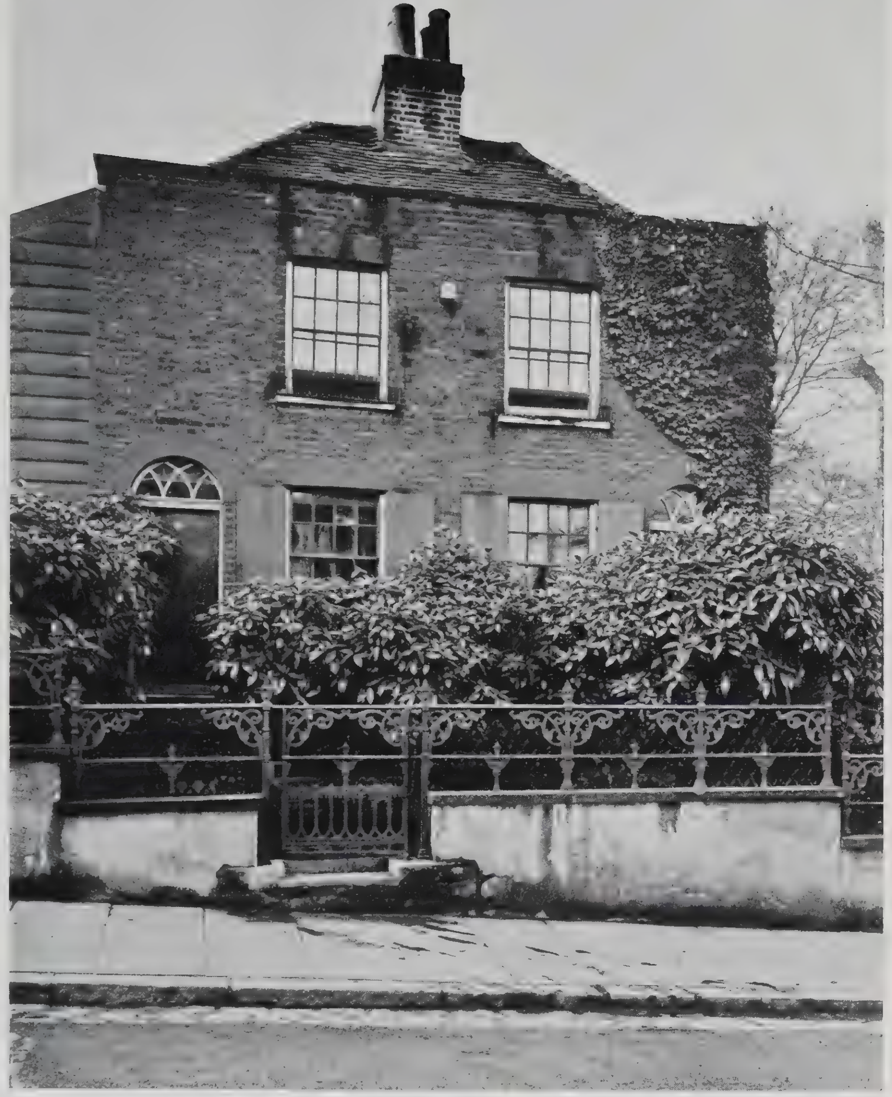
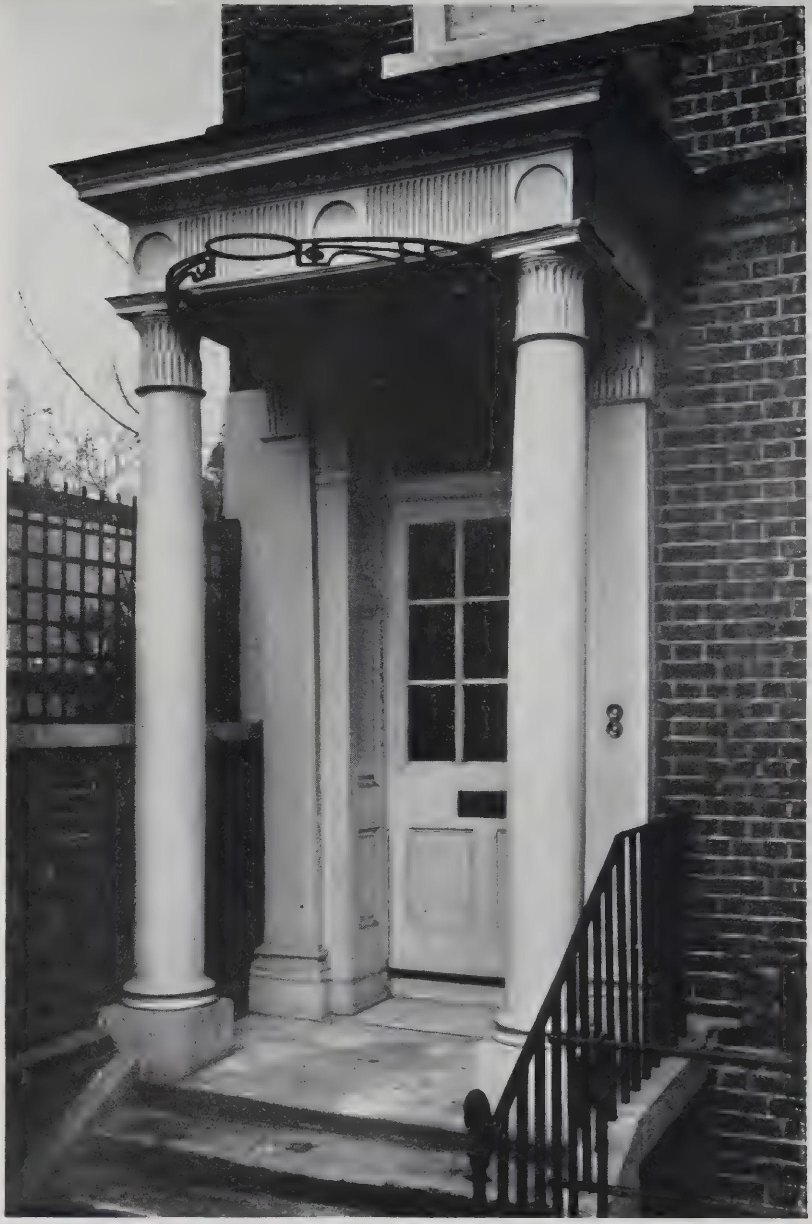


FRENCH MONUMENTS. IV.—MASSÉNA MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.
MÉRY VINCENT, ARCHITECT.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



Cottages in Southwood Lane.



Porch to House in Church Row.

SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XL.—HOUSES AT HAMPSTEAD. LONDON, N.W.

LIBRARY
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THE PLATES.

Shop and Offices, Newcastle-on-Tyne.

AS a result of the narrowness of the site, this new building rises high above the comparatively low premises on either side of it. The facing is of ory-white "Marmo," and the windows have metal ames. A special feature is the design of the butcher's op window, the whole of which below the transom arranged to be removable if required. The shop erb and sill are of unpolished grey granite with an on grille between. The roof is covered with West- orland slates of small size. Messrs. Percy L. rowne and Glover, of Newcastle, were the architects.

"Dalbeathie," Perthshire.

This house stands on the north bank of the Tay, near unkeld, amidst beautiful highland country. It was esigned for the late Mr. E. E. Briggs, R.I. The alls are brick, cement-harled, and the roofs are vered with grey Caithness slabs. The plans repro- uced below show the accommodation provided. The chitects were Messrs. Mills and Shepherd, of Dundee.

Doorway in Boodle's Club.

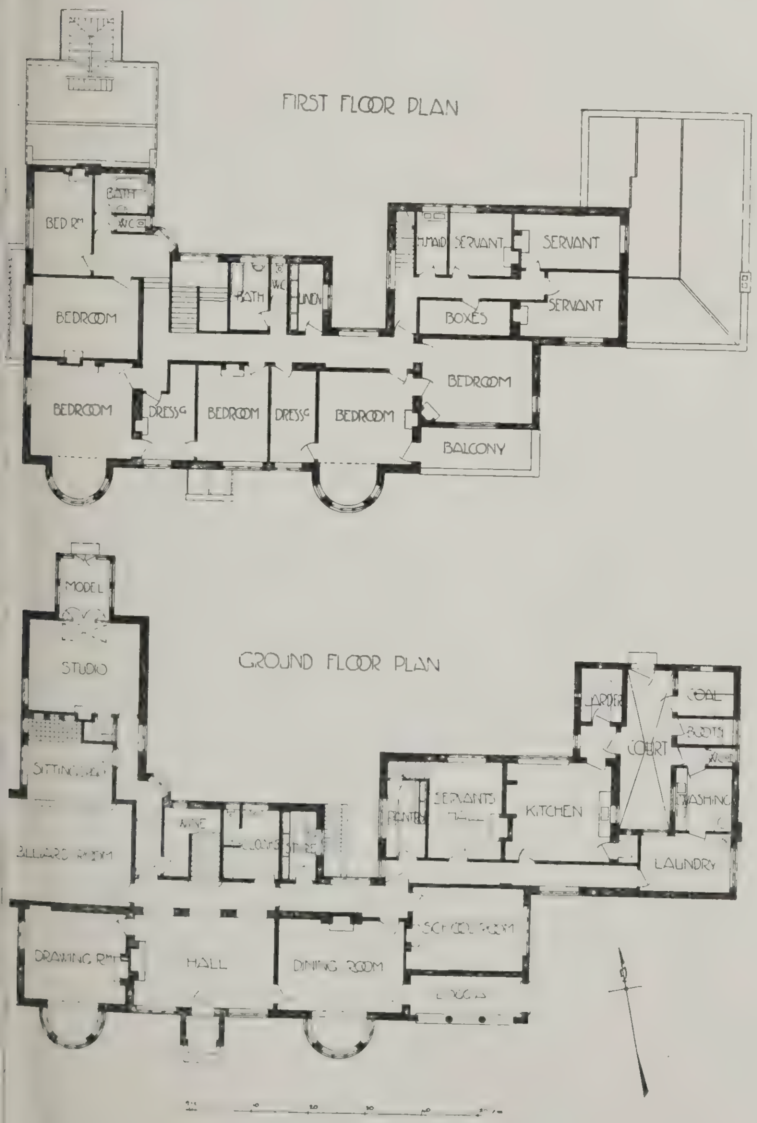
Boodle's Club, in St. James's Street, is said to ve been built about 1765 by John Crunden from signs by Robert Adam. Its chief feature within is e fine Saloon on the first floor on one side of which a large doorway, of which we give a detail. This, th its rams' head capitals to the pilasters and decora- e panel in the frieze, is a typical example of the work Robert Adam, who was a master in the placing of his ornament, knowing just what weight to give to each individual member, whilst carefully subordinating it to the effect of the whole. The relief ornament on this doorway is executed, we believe, in "compo."

Masséna Monument.

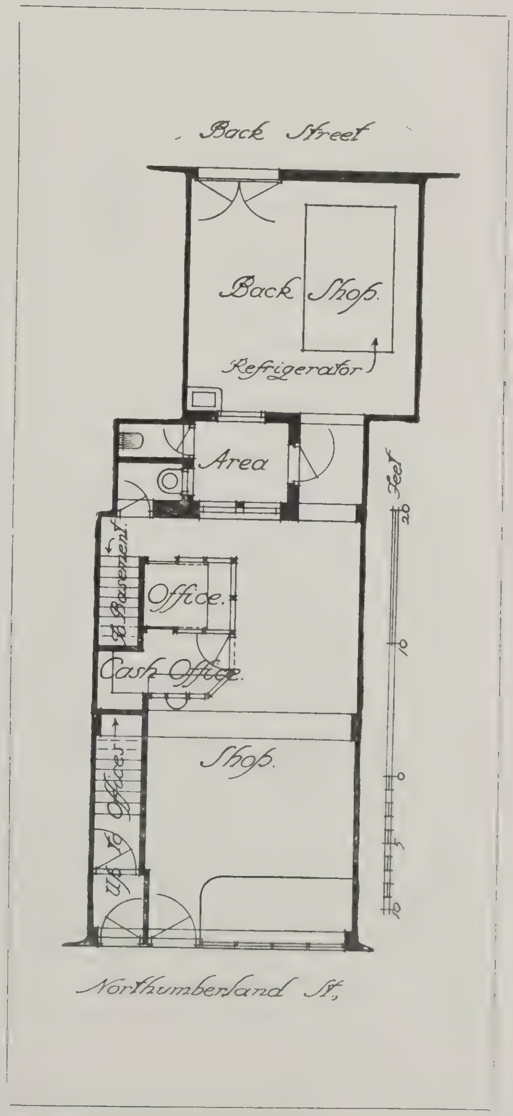
This monument to Masséna, one of the most illustrous warriors of the Napoleonic era, is nearly 20 ft. in height, executed in Carrara marble. The pedestal bears on its principal face a bust of the marshal, surrounded by a garland supported from two swords. A similar treatment is adopted for the rear face, with the arms of Masséna in the place of the bust—the arms including a figure of Victory and a dog, presumably intended to recall that Victory to Masséna was, like the dog, always faithful. On the sides of the pedestal are insignia enclosed by laurel wreaths. Above rises a plain shaft inscribed with the marshal's name and the date of his death, April 4, 1817, together with the titles of the chief battles in which he was engaged —Rivoli, Zurich, Genoa, Essling. Méry Vincent was the architect of the monument, Bosio executed the bust, and Jacques the carved ornament.

Houses at Hampstead.

The cottages in Southwood Lane attract attention by their general breadth in design, the ample spaces around doors and windows giving an air of spaciousness which is not common in small houses. The railings in front are, of course, modern, of a very bad period. In the other illustration, a porch to a house in Well Walk, we have a simplified version of an elaborate type, the simple fluting to the capitals taking the place



"DALBEATHIE," DUNKELD



SHOP AND OFFICES, NEWCASTLE-ON-TYNE.

of carved acanthus leaves, and the circular sinkings taking the place of enriched pateræ. The door itself is certainly not the original, which would probably have been a solid six-panelled door. But quite one of the best details of this example is the wrought-iron lamp bracket. This is admirably contrived.

Palazzo Larderell, Florence.

This façade is tamer than some of the other Florentine palaces we have illustrated. It is, however, a sober piece of work, offering points of interest, the ground-floor storey more particularly.

Conservatory, Bois de Boulogne. Paris.

If there is one feature more than another in connection with a house which is in need of tasteful architectural treatment it is the conservatory: and the example from a house in the Bois de Boulogne may well be studied from this point of view. The composition embraces a central little room, of hexagonal shape with semi-circular recesses at the corners, from which the conservatory extends in three arms, apportioned to hot and cold plantations. There is about all French work of this period—the late eighteenth century—a certain artificiality, and rustic affectation, which is not absent in the present case, but architecturally the conservatory is of exceptional merit.

THE PROPOSED NEW BOARD OF TRADE BUILDINGS.

IN a later portion of this issue we reproduce competitive designs for the new Board of Trade Buildings, which are to be built in, or rather off, Whitehall at a date whose distance probably depends on the duration of the war. In order that there shall be no interference with Inigo Jones's Banqueting Hall, or the Royal United Service Institution, or the curiously individual Gwydyr House, the new offices are to stand between these buildings and the Victoria Embankment, and will be bounded on the one side by Horse Guards Avenue, and on the other by a new roadway alongside Montagu House, between Whitehall and the Embankment. On the river side the building line will be a continuation of Whitehall Court, and this will leave a vacant space about 150 ft. wide which will be used as a garden.

The offices will consist of a basement, a sub-ground floor, a ground floor, and eight other storeys, the height from the street to the top of the main cornice being 100 ft. The ground storey will be of granite, the upper portion of Portland stone, and the roof of lead. The height of the building will make it a landmark for a considerable distance around, and it will be especially noticeable from Westminster Bridge, Whitehall, and St. James's Park. In view of this, Mr. E. Vincent Harris, the author of the winning design, has given the two upper storeys a square pilaster treatment, offering a strong contrast to the flat treatment below. A deep, strongly moulded cornice will surmount the whole, showing a horizontal skyline, broken only at each end. On the Embankment front will be a terrace about 40 ft. wide, flanked on each side by a projecting "screen" or archway, leading to a granite pavilion. Beyond will be the garden, laid out simply in large flower-beds, with, it is suggested, two sculptured groups symbolical of commerce and navigation.

It is intended that the building shall be erected in two portions, the southern portion first. The cost of the two blocks will be approximately £285,000 and £270,000. The historic rooms will not be disturbed in any way until the first portion of the building is erected. It is anticipated that the new offices, when complete, will accommodate about 3,800 persons.

Further particulars are given with the illustrations on pages 71 and 72.

NEW SERIES OF "THE PRACTICA EXEMPLAR."

A NEW series, the fifth, of that most useful po
folio of plates which is issued under the title
"The Practical Exemplar of Architecture"
just been published. It follows the arrangeme
adopted in the former issues, each example bei
shown by measured drawings accompanied
photographs. This is quite the best possible way
illustrating architectural details, because it not o
represents the appearance of the work as executed,
also supplies the technical points of its design and c
struction which are so essential; for there are in
merable features, both internal and external, wh
depend for their good effect upon subtleties that c
not be determined from photographs unaccompan
by measurements, nor, similarly, from drawings alo
it is only when both are combined that all requireme
are satisfied.

The new "Exemplar" covers an immense numbe
subjects, embracing a variety of styles. There
many admirable examples of Renaissance work,
the type which is generally known as "Georgian,'
well as early examples like the doorway to St. Hel
Church by Inigo Jones, and late examples such as
archway at King's College by Sir William Chamb

A specially valuable section is that devoted
ecclesiastical woodwork. This includes a pu
from Rye Church, with linen-fold panels; a fine
in Whalley Church; the oak lectern in Pembr
College Chapel, Cambridge, dated 1663; a m
interesting little dole cupboard at Ruislip Church;
altar rails in Dorchester Abbey; and St. Dunst
Chapel in St. Paul's Cathedral, which contains s
admirable work in stone and wood.

Furniture is a new section of the "Exemplar,"
examples shown comprising some tables from Brow
Hospital, Stamford, of sixteenth-century date.

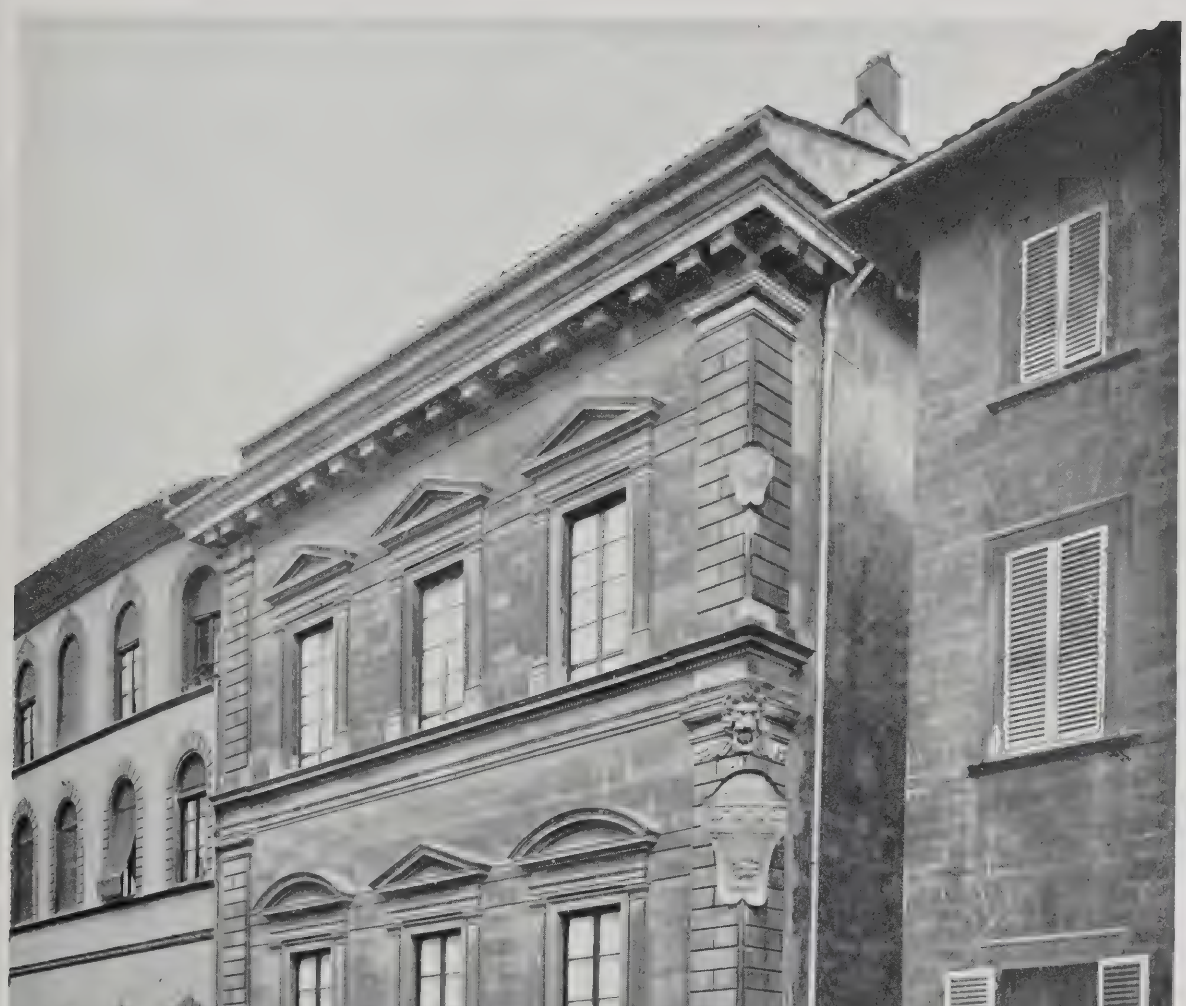
Domestic interior woodwork is another interes
section. Especially useful are the drawings of
room from No. 3, Clifford's Inn which is now prese
in South Kensington Museum. A less fam
example is the dog gate in the Gordon Hote
Rochester, with a well executed carved pane
Renaissance type, while other examples in this sec
include the splendid panelling in the Metropo
Water Board's offices; the "cube room" at Sudb
Park, which is one of James Gibbs's best works;
a very characteristic Dutch fanlight carved in oak

The section dealing with ironwork includes s
plates of an elaborate example of Scottish smith-
at Donibristle House; but the "Exemplar" cater
all needs, and so we find in this section quite si
examples like the gate in Whitchurch churchyard,
a garden balustrade from a house at Enfield.

Among other work shown in the issue are tombs,
monuments, windows and church screens; while
section devoted to general exteriors includes
examples as the Town Hall at Wallingford, the st
at Thorpe Hall, and the old Bone Mill at Harn
The last-named is a particularly attractive examp
diaper work—not, as this work is sometimes done,
mechanical precision, but built somewhat irregu
as the stones were large or small, and with a c
sponding increase of interest.

Altogether the issue fully maintains the standa
in previous years. The draughtsmanship is in
case excellent, the drawings being fully detailed,
very clear.

The price of the "Exemplar" is 15s., whi
remarkably good value considering that altog
there are 112 plates with eight pages of letter
the whole enclosed in an attractive portfolio.
published by the proprietors of "The Archite
Review," Messrs. Technical Journals, Ltd., from
offices, 27-29, Tothill Street, Westminster.



FLORENTINE PALACES. IX.—PALAZZO LARDERELL.

G. ANTONIO DOSIO, ARCHITECT.

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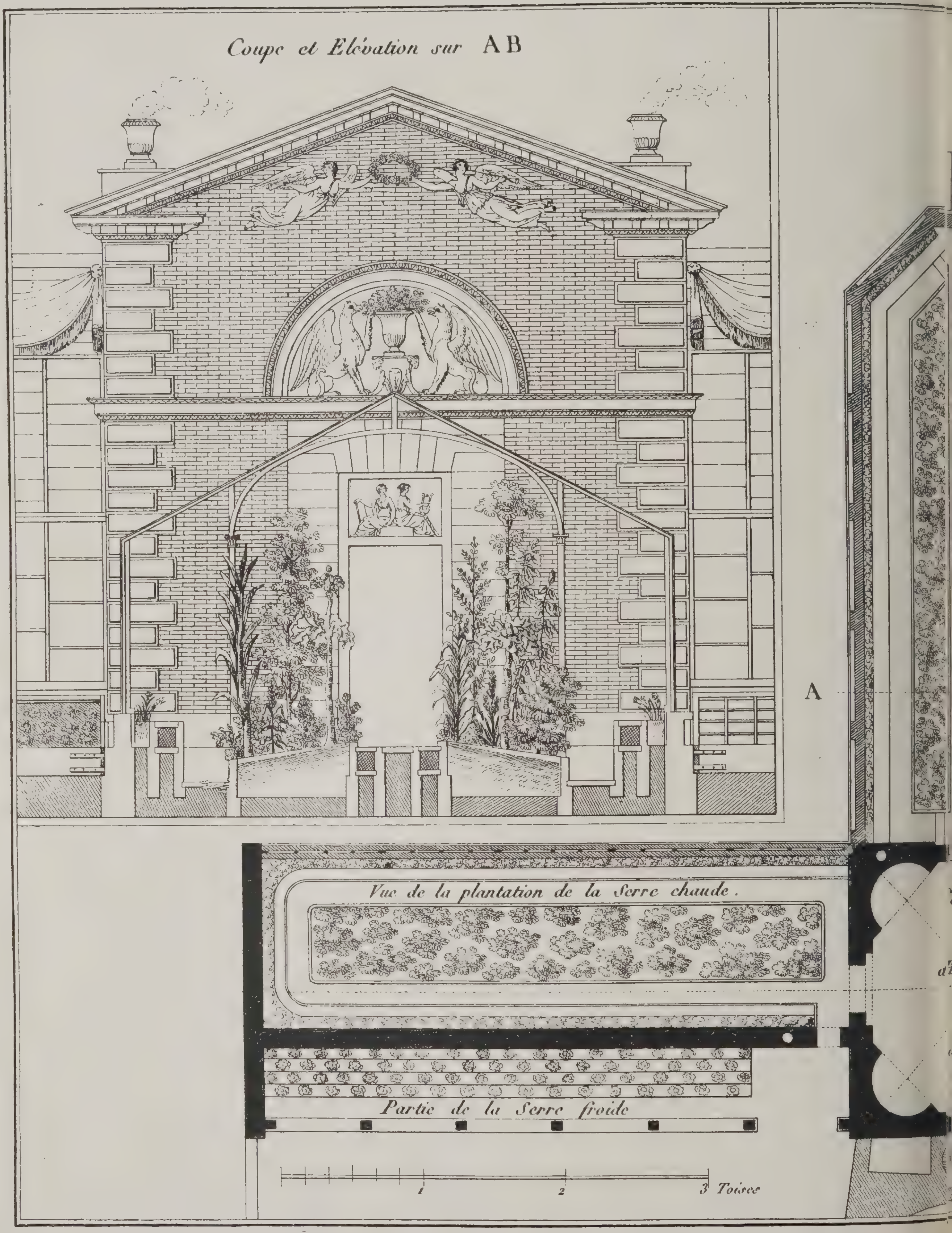
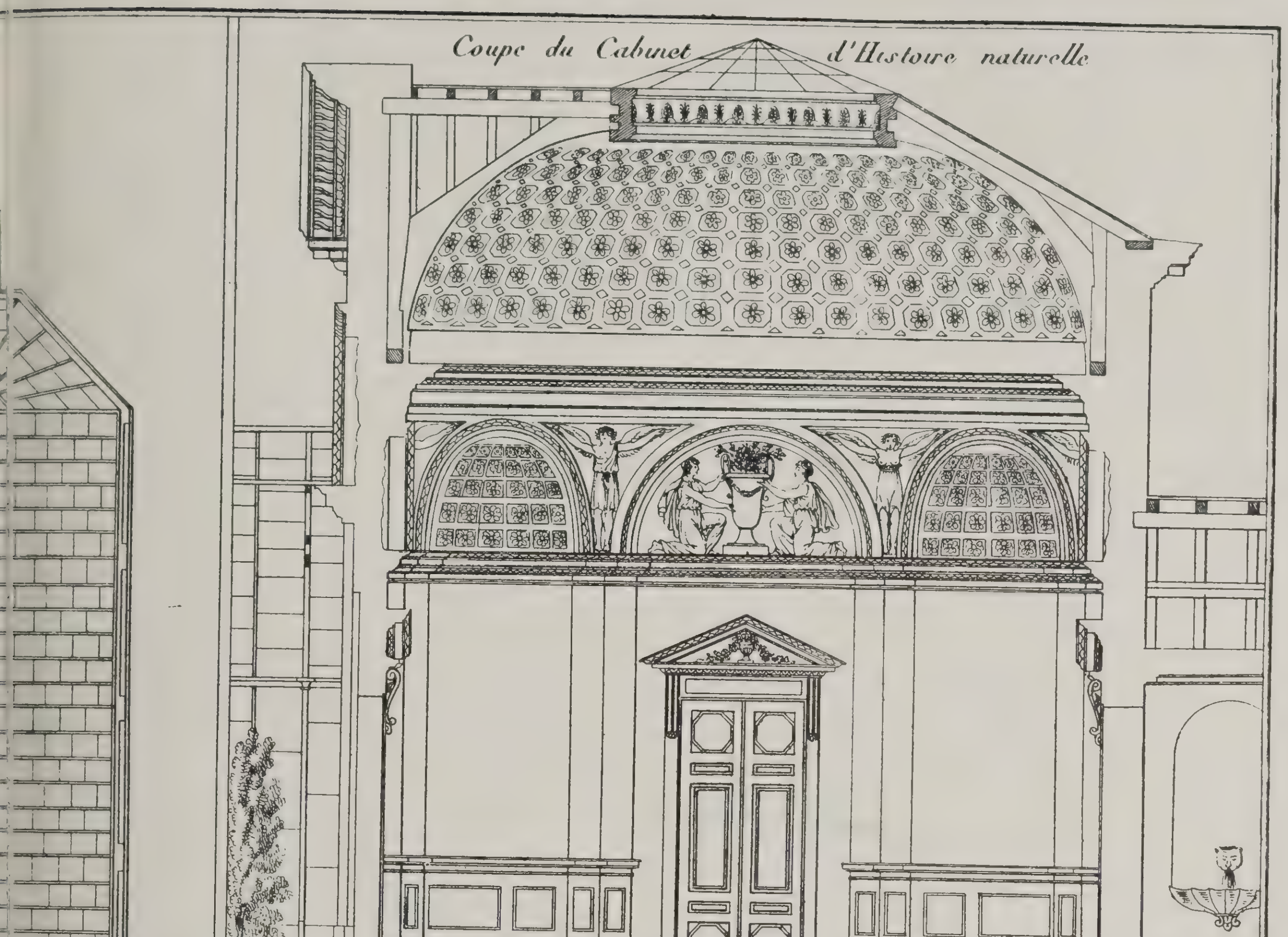
lement to "The Architects' and Builders' Journal," Wednesday, February 10, 1915.


Coupe et Elévation sur AB
A
Vue de la plantation de la Serre chaude.
Partie de la Serre froide
1
2
3 Toises

DESIGNS FROM KRAFFT. III.—CONSERVATORY IN TH

BÉLLAN



OF A HOUSE IN THE BOIS DE BOULOGNE, PARIS.

CT.

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HERE AND THERE.

WHEN the War is over, and a grateful nation seeks to commemorate its heroes, let us hope that the bad precedent of Blenheim will not be lowed, nor so unhappy a fate as Vanbrugh's be in re for the architect who is charged with the national nmission. There is, I believe, a goodly stock of ublished correspondence concerning the gigantic at Woodstock. Possibly it was a part of this stock t was drawn upon by the late Lord Beaconsfield's ner, Isaac D'Israeli, in compiling, for his "Curiosities Literature," the secret history of the building of nheim. "I draw the materials of this secret ory," he says, "from an unpublished 'Case of the ke of Marlborough and Sir John Vanbrugh,' as also n some confidential correspondence of Vanbrugh Jacob Tonson, his friend and publisher." It is th while to give a brief account of the matter here, facing it with the remark that Vanbrugh seems to e been a very jolly, handsome man, with any ount of invention and vivacity, a master of that t of good-fellowship" which he found to be the true ddin's lamp of the social life of his age.

* * * *

lenheim House having been the first gift in the n of a public monument which Parliament had ever n called upon to grant, some excuse has been de for the slight oversight in voting the building hout the accompanying sum to pay for its erection— m which, in the end, amounted to little short of a rter of a million. And of the difficulties, animosi- , bitterness, and dissatisfaction which arose from cause there is no end in the history of Blenheim. ngs do not appear to have been so bad in the life- of Queen Anne; the story goes that Vanbrugh, Comptroller of Her Majesty's Works, was instructed prepare a model, which the Queen kept in her ice, and gave orders for the issue of money for the ding through her Surveyor-General. It was in later rs that the climax of vexation was reached. Work he building was for ever being started and stopped, though the great Duke was anxious to see his se completed, he was very wary as to giving any er or suggesting any alteration, in case he should debited with the expense; and, properly so, for, r all, this was a mansion being built *for* Marl- ough, not *by* him.

* * * *

he enterprise was an unfortunate one for everybody cerned. For the workmen it promised at first to be El Dorado; but "crown pay" turned out in the end e high wages and uncertain payment, in exchange which they gladly accepted Vanbrugh's proposal a third less, prompt cash. This promptness, how- , also appears to have vanished, and as the kmen became more clamorous than ever, the itect proceeded to bring the matter to a conclusion harging Marlborough himself with the whole debt. Duke did, in the end, undertake this charge, ing perhaps that it afforded the only means of ging the work to completion; though, as events ed out, he never lived to reside in the house which been ostensibly given to him by the nation. But, verybody knows, it was the lady in the case that ve the architect to desperation. Of the celebrated hess, and her ways, many pages have been written, those relating to her relations with Vanbrugh n a record of one of the great quarrels of ate history. Vanbrugh, as already indicated, attempted to turn the cost of Blenheim on Marlborough: the Duchess tried to turn it to him! Said the disappointed architect: have the misfortune of losing, for I now see hopes of ever getting it, near £2,000 due to me many years' service, plague, and trouble at Blen- , which that wicked woman of Marlborough is so far from paying me that the duke being sued by some of the workmen for work done there, she has tried to turn the debt due to them upon me, for which I think she ought to be hanged." For new methods in architectural practice it is necessary forsooth to bring the better-half upon the scene. On the one side, new delights are then added to old ones; and on the other, a tantalising aggravation of trifles and acerbity, in no case more strongly exhibited than at Blenheim. Certes the architect's cup of woe was filled to the brim when, after "the best haters of the time," Swift and Pope, had recounted his achievement in bitter prose and verse—concerning his laying upon the earth a structure "only a few tons lighter than herself" and so forth—the vicious Duchess worried him half-way to his grave, refused to let him enter the building or its grounds, and finally put the completion of Blenheim in the hands of another, who worked (unhappy man) under her own immediate superintendence.

* * * *

I cannot forbear a further reference to Vitruvius, from a new translation of whose ten books I made an extract last week. In his introduction to the tenth book he outlines an ancient procedure in the matter of building which would make it appear that the practice of architecture was one of the seven deadly sins. He says: "In the famous and important Greek city of Ephesus there is said to be an ancient ancestral law, the terms of which are severe, but its justice is not inequitable. When an architect accepts the charge of a public work, he has to promise what the cost of it will be. His estimate is handed to the magistrate, and his property is pledged as security until the work is done. When it is finished, if the outlay agrees with his statement, he is complimented by decrees and marks of honour. If no more than a fourth has to be added to his estimate, it is furnished by the treasury and no penalty is inflicted. But when more than one-fourth has to be spent in addition on the work, the money required to finish it is taken from his property. Would to God that this were also a law of the Roman people, not merely for public, but also for private buildings. For the ignorant would no longer run riot with impunity, but men who are well qualified by an exact scientific training would unquestionably adopt the profession of architecture. Gentlemen would not be misled into limitless and prodigal expenditure, even to ejectments from their estates, and the architects themselves could be forced by fear of the penalty to be more careful in calculating and stating the limit of expense, so that gentlemen would procure their buildings for that which they had expected, or by adding only a little more." How tame are our modern ways, when honours accrue to the architect who revels in extras, and the ingenious builder draws a smile over the addition for work done at less than cost price. Incidentally, the Registration enthusiast may perhaps read something of his own doctrine into that phrase of Vitruvius about the ignorant who run riot with impunity. Certainly the insinuation would seem to be that the rank and file of Roman architects did not bear "the grand old name of gentleman."

* * * *

In the present crisis architects and builders are ready to turn to any other work than architecture and building which may present itself, just as some firms who were wont to concern themselves with carved and moulded ornament, shop fronts, and what not, are busy from morning to night on ammunition cases and other things for the new army. It is only a sign of the times, therefore, to see the following advertisement in the "Rugby Advertiser": "Wanted, a good all-round man for cows and pigs, who can build and thatch." Specialisation, after all, is a curse of the age. But the advertisement hardly makes it clear who is to build and thatch, the all-round man or the others.

UBIQUE.

ENQUIRIES ANSWERED.

Discoloration in Hot-Water Supply.

B. AND Co. write: "We should be glad of your advice in connection with a hot-water supply fitted up about three months ago, with red steam tubes. It is principally supplied with unfiltered rainwater, but occasionally, when this is short, with well water. When using the rainwater the hot water is nearly always badly discoloured with a sort of red rust, and does not get any better, although the cold rainwater drawn off is quite clear. When the system is supplied with well water it is all right. Can you explain this and also suggest a remedy?"

—The use of ungalvanised wrought-iron tubes for domestic hot-water supply work is quite sufficient in itself to cause rusty water, even when the water is fairly hard. The trouble, however, is easily overcome in the case of hard water by "boiling up" the system for a few hours, and so getting a fine coating of lime deposit on the insides of the pipes. This is found to entirely overcome rust troubles. Where the water is not hard (and also not too soft), galvanised circulating pipes should be fixed, which will prevent discoloration of water. But in the case of very soft water, or any water containing vegetable or mineral acids in solution, whereby a destructive influence is found to take place on iron, the only way of overcoming the trouble is to put in copper circulating pipes instead of iron. It seems in the present case that you are dealing with soft rainwater and hard well water. It is always advisable to get an analysis of the water from wells and springs before installing a domestic hot-water system, as certain well waters attack iron pipes in an amazing fashion, in which circumstances copper pipes only can be used. I am afraid you will always have trouble with discoloration when using hot rainwater in ordinary iron tubes.

C. R. A.

Graphic Statics.

X writes: "I should like to know your opinion of Charnock's "Exercises in Graphic Statics" for use as a book on stresses and strains for the R.I.B.A. Final Examination?"

—Charnock's "Exercises in Graphic Statics" is an excellent work of its kind, and would doubtless be of considerable assistance to a candidate preparing for the R.I.B.A. Final, provided he bears in mind continually the principle that geometry is not construction, but merely a labour-saving device, like the slide-rule, and that the whole science of graphic statics is based upon the assumption that all connections with roofs and frames are absolutely frictionless joints. Too much graphic statics is like a drug habit. It should only be imbibed medicinally. Book knowledge does not pay well in the R.I.B.A. Final; the requirements are best met by the candidate assiduously practising the preparation of neat large scale working detail drawings of roofs, floors, girders, walls, etc., which have been calculated by the application of the ordinary principles of structural mechanics which he has presumably mastered for the Intermediate.

PERCY WALDRAM.

Dust Chutes for Tenements.

C. C. V. writes: "I desire to obtain some information regarding dust chutes for tenements. These are not, I believe, very generally used, but are preferred in certain districts to galvanised dust bins. I have been unable to find any information in the standard text-books."

—We referred this enquiry to two architects who have had extensive experience of tenement buildings, and they have forwarded the following replies, which, of course, should be read in conjunction with our correspondent's that dust-chutes are still preferred in certain districts.

Mr. R. Stephen Ayling, F.R.I.B.A., says: "I have never used dust chutes for tenements myself and think they are as obsolete as pan-closets." Mr. E. C. P. Monson, F.R.I.B.A., says: "I never use dust chutes for tenements; they are an abomination. Presumably very few are used, but I find that the fittings are shown in the catalogues of several iron-founders."

SOCIETIES AND INSTITUTIONS.

Later Renaissance Architecture at Cambridge.

At the last meeting of the Leicester Society of Architects a paper on "The Later Renaissance Architecture of Cambridge" was read by Mr. C. E. Hill. The lecturer dealt with the growth of the Renaissance at Cambridge, and the influence of masons and "Freemasons" in promoting the style. He passed in review the work of Wren, Hawksmoor, Gibbs, and Wright, and then proceeded to consider the work of the amateurs and the Greek revival at Cambridge.

The Building of Fountains Abbey.

At the meeting of the Leeds and West Yorkshire Architectural Society, held on January 28, Mr. Thomas W. Thornton (president of the Leeds Photographic Society) gave a lantern lecture on Fountains Abbey. He traced the history of the Abbey from the beginning of its building in the year 1132 and told of the hardships which beset the Cistercian monks in the task of completing such a large undertaking. They found labour difficult to obtain and building material scarce, the stone being finally obtained from Pateley Bridge.

A Belfast School of Architecture.

The annual report of the Ulster Society of Architects, presented at the recent annual meeting, stated that during the past year the Council had been in correspondence with the R.I.B.A. regarding the recently formed school of architecture at the Belfast Technical Institute, with a view to having the school approved by the Board of Architectural Education for the preparation of students for the Institute examinations. The Board deputed Mr. Paul Waterhouse, M.A., to visit and report on the school and its work. Mr. Waterhouse visited Belfast on November 26, and, as the result of his inspection, the school has been approved by the Board of Architectural Education. The report further states that architects in Ulster have responded nobly to the call of their King and country. Already twelve of the profession have joined the Colours, and are now at the front or in training at the different camps. The following officers and Council were elected for the ensuing year: President, Mr. N. Fitzsimons, F.R.I.B.A.; vice-president, Mr. R. E. Buchanan. Members of Council: Messrs. R. M. Young, F.R.I.B.A.; W. J. Gilliland, F.R.I.B.A.; T. Houston, J. J. M'Donnell, J.P.; and G. Sands. Assoc. Members of Council: Messrs. R. M. Close and H. Lamont.

BOOK NOTICES.

Lockwood's Price Book.

We notice that, in dealing with som
the contingent effects of the war,
editor of "Lockwood's Price Bo
quotes in full the additional condition
contract drawn up by Messrs. C. Harr
Townsend and C. H. B. Quen
FF.R.I.B.A., and communicated to
issue of September 16, 1914. We re
to see that no mention is made eithe
the names of the architects who are
authors of this very useful clause or of
Journal, for which it was expr
obtained. Otherwise we have no fau
find with a book that is of approved p
tical utility.

"Lockwood's Builder's, Architect's, Contrac
and Engineer's Price Book for 1915." Edite
Francis T. W. Miller, A.R.I.B.A. Pages clxv
284, 7½ in. by 5½ in., price 4s. London: Crosby
wood & Son, 7, Stationers' Hall Court, Ludgate
E.C., and 5, Broadway, Westminster.

The "Sanitary Record" Year Book

The feature of this annual (is
by the Sanitary Publishing Co., I
55-6, Chancery Lane, London, E.C.,
5s. 4d., post free) is the Directory of M
cipal Authorities, which now covers pr
cally the whole of the British Em
The Trade Directories section, revise
date, should be invaluable to officials i
viting contracts and placing or
There are also sections dealing
"Roads and Road Making," with "Re
Municipal and Sanitary Legislation,"
other matters of immediate interes
those for whom the year book is espec
intended.

Boilers, Economisers, and Superhea

Of recent years there has been
scientific investigation of the phenon
of combustion, and the practical result
ferring to boilers, economisers, and su
heaters have been incorporated and
discussed in Mr. Robert H. Smith's
useful book. At the outset, the au
notes what he conceives to be a ser
error of text-books and formulæ rela
to boiler design—namely, that of regar
the heating power as solely depen
upon the conduction of heat from the g
to the heating surface. A very large
portion of the heat is transmitted, he p
out, not by conduction and by contact
the hot gas, but by radiation from th
candescent fuel and the incandescent
of the flame, but hitherto the quantit
this radiation has never entered into
formulation of rules of design, and
omission is supplied in the pre
book as fully and scientifically
the available data make poss
A further valuable innovation is the re
tion to diagrammatic form of the law
heat transmission in boilers, so that
quantities can be read off the scale wit
calculation, or can be found by simple
tiplication of the scaled diagram ordin
Contractors, and other power-users,
find special value in the chapters or
spectively the calorific value of Br
coals, the specific heat of the produc
combustion, and on economisers and su
heaters; but it is to engineers who de
heating and power plants that the
chiefly appeals.

"Boilers, Economisers, and Super-Heaters:
Heating Power and Efficiency." By Robert H. S
Assoc.M.I.C.E., etc. With all useful formul
duced to diagram form. Pages viii. + 128, 9½
6 in., price 7s. 6d. net. London: Crosby Lock
& Son, 7, Stationers' Hall Court, Ludgate Hill,
and 5, Broadway, Westminster.

NEWS ITEMS.

ew College Chapel at Cambridge.

new chapel is being built at Sidney sex College, Cambridge, from designs Mr. T. H. Lyon.

econstruction of a Glasgow Church.

t St. Bride's Episcopal Church, Hynd- d Road, Glasgow, a scheme of recon- iction has been carried out involving ctically the rebuilding of the church. H. O. Tarbolton, F.R.I.B.A., of nburgh, was the architect.

Definition of a Plumber's Fitter.

n the current issue of the Journal of National Association of Master Heat- and Domestic Engineers, a plumber's r is defined as one who "(1) is capable aking charge of a job by himself; (2) is to bend wrought-iron pipe; (3) is able vork from a plan."

fle Range at the New County Hall.

t the new London County Hall, now in rse of construction, a portion of the -basement is to be used temporarily as a range for the Council's staff, and the ncil has authorised an expenditure no eding £50 for fitting up the range and alling electric light

Soldier Artists.

he January issue of the Journal of Imperial Arts League gives a first list rtists and members of the League now ing their country. This includes more n 200 names, including several archi- s, among them being Mr. H. C. Cor- (Major in King Edward's Horse), Mr. ald P. Milne (Artists' Rifles), Mr. A. ter Rose (Lieutenant in the Essex manry), Sir A. Brumwell Thomas ny Service Corps), and Mr. Maurice Vebb (Second Lieutenant in the Royal ineers, Territorials).

Progress of Liverpool Cathedral.

a meeting of the Liverpool Cathedral mittee held last week it was explained , after taking into account recent rises ages and the cost of materials, further ributions to the extent of £44,466 ld be necessary to complete that por- of the Cathedral now in course of truction. At the rate of progress ned before the war, the chancel and transept would have been ready for ecration two and a half years hence. committee still hope that this event be so little postponed that it will be gnised as one form in which the dio- may celebrate the conclusion of a ous peace.

A City Steamship Office.

e City Office of the Allan Line, at 103, lenhall Street, E.C., has recently been formed and redecorated under the tion of Mr. Arthur Bolton, F.R.I.B.A. general design of the public office is Colonial in character—a version of the n style which prevailed at the end of ighteenth century, low relief plaster- (modelled by Mr. Rogers, of Messrs. ge Trollope and Sons, from the archi- drawings) ornamenting the walls. manager's room displays an architec- ly treated framework of wood with d glass panels and an oval ceiling Messrs. Harrison and Spooner, of ion, E.C., were the general con- ors.

Battalion of Navvies.

e Army Council has authorised the ation of a public works pioneer battalion—18th (Service) Battalion Middlesex Regiment—to enable navvies and other workmen on public works to give their skill for the defence of the State. The pay is 2d. a day above infantry rates. Recruits must have a thorough knowledge of excavation and building. Recruits can be enlisted anywhere, and when passed will be sent to the battalion depôt free of expenses. The battalion is supported by the trade unions and the contractors connected with public works.

Builders' Protest against Charge for Water.

A deputation from the local builders waited recently on the Oystermouth Council to protest against the price charged for water used for building purposes. (The present charge is 10 per cent. on the ratable value when builders make their own mortar, and 7½ per cent. when the mortar is bought.) The spokesman was asked what he considered a fair charge, and he replied that half the present rate was reasonable. The Council finally decided to lower the charge to 5s. per cent. on the estimated cost of a house when the builder made his own mortar, and 3s. 6d. per cent. when he bought it.

The Increase in the Price of Timber.

At the annual meeting of the South Wales Federation of Master Builders, held at Pontypridd last week, a report was presented showing the increase which had taken place in the price of timber, the average increase in the South Wales area being about 40 per cent. compared with the prices prevailing at the commencement of the war in August last. One of the delegates stated that the time had come when pressure should be brought to bear upon the Board of Trade to do something for the builders in keeping the prices within reasonable limits.—New officers for 1915 were elected as follows: President, Mr. Herbert Waring (Messrs. Waring, Cole and Waring, contractors, Neath); Senior Vice-President, Mr. J. Jones (Messrs. Jones Bros., Merthyr Vale); Junior Vice-President, Mr. T. F. Howells (Caerphilly).

Municipal Contracts and the War.

In connection with the request from certain contractors to be allowed an increase in their contract rates consequent upon the outbreak of hostilities, the Stepney Borough Council approached the Local Government Board, who stated in reply that, in their view, the war does not affect the liability of contractors under contract with local authorities; but that there may be cases in which the circumstances of a particular contract would have to be considered in order to determine the legal position. The Local Government Board suggest that local authorities should endeavour to arrange with contractors to continue to supply, "on the understanding that whilst the contracts will form a basis for arrangement as to the prices to be paid, the local authority will be willing in proper cases to settle the actual amounts at a subsequent date, either by agreement or by arbitration."

The Recent Floods.

There is no doubt that not only have the roofs of most buildings in these isles been tested with regard to their watertightness by the recent heavy rains but also the walls and cellars. A wall or cellar that has failed to keep a structure dry during this period can, we are assured, be made bone-dry by adding the powder "Pudlo" to the cement used for concreting and rendering. The makers claim to have cured many such cases in the past, and they state that they will be glad to advise in any particular case if full particulars are sent them.

Price of Building Materials.

The increases in the price of building materials at Dublin since July last have been as follows:

Bricks	2½	per cent.
Corrugated Iron (Gal.)	4.54	,,
Glass:—		
Polished Plate, cut to sizes	100	,,
Rolled Plate	20	,,
Figured Rolled	15	,,
Nails	12	,,
Screws	6.66	,,
Brass Screws	5	,,
Cement	8.23	,,
Lead	6.36	,,
Steel Joists	16	,,
Zinc (Ingots and Spelter)	31.14	,,
,, Sheets	92.16	,,
Brass ,,	14.28	,,
Copper ,,	2.56	,,
,, Tubes	6.66	,,
Timber:—		
White Norway, P. & J.	26.29	,,
,, ,, T. & G.	25.92	,,
Red	16.66	,,
Spruce Deals	25	,,
Pitch Pine	13.79	,,

COMPETITIONS.

Children's Home, Spalding.

The Guardians of the Spalding Union invite designs for a children's home. In the published advertisement it is stated that "The Guardians will select the design which, in their opinion, best carries out the requirements of the Local Government Board, at the same time having in view the cost. Public institution appearance as far as possible to be avoided." A memorandum containing suggested designs can be inspected by appointment at the offices of Mr H. Stanley Maple, clerk to the Guardians, Spalding, to whom competitive designs have to be sent in by February 27.

LIST OF COMPETITIONS OPEN.

February 27.—Children's Home, Spalding.—Designs invited by Guardians. Particulars from H. Stanley Maple, Clerk, Union Offices, Spalding. (See note above.)

March 31.—Street Planning, Bradford.—The Corporation of Bradford invite competitive designs for the replanning of streets in the central area of the city. Mr. Reginald Blomfield, R.A., will act as assessor. Particulars (£1 1s., returnable) from Frederick Stevens, Town Clerk, Town Hall, Bradford

April 30. — Grammar School, Leicester. — The Corporation invite designs for the new Wyggeston Grammar School for Boys to be erected on a site next Regent Road. Competition limited to architects practising in Leicester. Premiums, £100, £70, and £50. Assessor, Mr. George H. Widdows, F.R.I.B.A.

OBITUARY.

A Labourer's Estate.

Thomas Halley, of Baintown, Kennoway, Fife, described as a labourer, has left personal estate valued at £1,483.

Estate of the late Mr. Charles Wall.

The late Mr. Charles Wall, J.P., of Messrs. Charles Wall, Ltd., builders and contractors, London, E.C., left estate which has been proved at £53,791 gross.

PROJECTED NEW WORKS.

School, Coventry.

The Coventry Educational Authority propose to build a school in Folly Lane to accommodate 1,200 scholars.

Housing Scheme, Hemsworth.

Hemsworth Rural Council have agreed to build 160 houses in the district, involving a capital investment of about £28,000.

Sanatorium, Blackpool.

Blackpool Corporation are considering plans for the erection of a sanatorium for consumptives at Staining at an estimated cost of £8,228.

School, Brixton.

It is proposed to erect a Council school in Holland Road, Brixton, to accommodate 800 children. The building will be planned for possible enlargements.

Baths, Scarborough.

An inquiry has been held into the application by the Scarborough Corporation for power to borrow £10,000 for the construction of open-air swimming baths.

Factory, Linlithgow.

Messrs. Nobel's Explosive Company Ltd., have submitted to the Linlithgow Dean of Guild Court plans of a proposed large addition to their Regent Factory. The estimated cost of the work is £8,000.

Town-Planning Scheme, Colne.

A Local Government Board inquiry is to be held during February into the application of the Colne Town Council for authority to prepare a town-planning scheme for the borough.

Hospital, Llanelly.

It has been arranged to seek Parliamentary powers to appoint a joint board representative of the Llanelly Town Council, the Llanelly Rural Council, and the Burry Port Urban Council, to erect an infectious diseases hospital.

Housing Scheme, Dewsbury.

Dewsbury's scheme for eighty-four houses in the Borough Park has received the sanction of the Local Government Board. Permission has been given to borrow the sum of £20,422 for this purpose.

New Bridge, Woking.

Hermitage Bridge, Woking, is to be entirely rebuilt. The surveyor to the Woking Urban Council has prepared a plan for a bridge 30 ft. wide, constructed in a different position from the existing one.

School, Dundee.

The Dundee School Board have adopted plans for a new school in Bellfield Street, prepared by Messrs. McLaren, Sons and Soutar. The cost is estimated at £22,700. The Board have also decided to obtain competitive plans for the extension of the Harris Academy.

Harbour Works, Blyth.

Blyth Harbour Commissioners have deposited a Bill for introduction into Parliament next session giving powers for the construction of a bridge across the Blyth, and the construction of three piers or breakwaters, at an estimated cost, for the latter work, of £105,323.

Bridge, Flintshire.

The Flintshire County Council have received a report from Sir Douglas Fox and Partners, engineers, London, to the effect that a new toll bridge at Queensferry has become a necessity, the present structure being inadequate to meet modern conditions of heavy traffic. The cost of a new bridge is put at £22,000.

Houses, Dalkey, Dublin.

A Local Government Board enquiry has been held into an application by the Dalkey Urban Council for a loan of £10,500 for the erection of thirty-five workmen's houses.

Swimming Bath, Taunton.

The surveyor has prepared plans of a swimming bath to be constructed in St. James's Street, Taunton, for the Town Council. The estimated cost is £3,000. A Local Government Board inquiry is to be held on the scheme.

Hostel, Acton.

Acton District Council have referred to the Works Committee to report on a scheme for the provision of a women's home or hostel and a feeding centre for necessitous children. Plans have already been drawn, and the estimated cost of the building is £5,200.

Town Planning, Edinburgh.

Edinburgh Corporation have received sanction to proceed with a town-planning scheme for Murrayfield, Ravelston, Craigleith, Comely Bank, and adjoining acres. Application is to be made for authority to prepare schemes for the Abercorn area and the South Murrayfield and Roseburn area.

120 Tenements, Tabard Street.

The Housing Committee of the London County Council are recommending the erection of dwellings upon the first section of the Tabard Street area. They propose to erect 120 tenements, containing 310 rooms. The total capital outlay involved is £33,282, of which £4,700 represents the housing value of the land to be appropriated.

Asylum Extension, Plymouth.

The Lunatic Asylum Visiting Committee have made the following recommendation to the Plymouth Borough Council: That it is desirable to extend the asylum to provide accommodation for 440 additional patients, and that Messrs. Thornely and Rooke, architects, of Plymouth, be instructed to prepare designs for the extension of the asylum on the terms laid down by the Royal Society of Architects.

Plans Approved: Bournemouth.

Bournemouth Buildings' Committee have approved the following plans: Eight houses, Spring Road, for Mr. J. Newbury; Wesleyan school, Holdenhurst Road, for the committee; conversion of houses into shops at 57 and 59, Charminster Road, for Mr. S. G. Brown; Parish Hall, St. Luke's Road, for the Building Committee of St. Luke's; additions to the Manchester Hotel, St. Michael's Road, for Mr. W. Mattocks; house at Boscombe Cliff Road, for Mr. T. Collins.

Rehousing, Nottingham.

The Nottingham Housing Committee have recommended to the City Council that application be made to the Local Government Board for sanction to borrow £34,536, the balance of the £58,310 0s. 6d. required for the acquisition of the remainder of the property necessary to the completion of the Carter Gate and Manvers Street improvement scheme. The Committee report that they have bought the land and premises necessary for proceeding with the first stage of the rehousing proposals between Pennyfoot Street and Newington Street, and the work of demolition is well in progress.

Eleven Town-Planning Schemes.

The Local Government Board have gi authority for the preparation of ele further town-planning schemes under Housing, Town Planning, etc., Act, 1 The schemes are authorised to be prep by the Corporations of Birkenhead, L (two schemes), Lincoln, Manches Rochdale, Southend-on-Sea, and Walls and the Urban District Councils of E and the Dittons, Grays, Thurrock, Neston and Parkgate, and relate to a of about 166, 2,278, 895, 207, 5,269, 1 268, 1,105, 1,643, 2,374, and 3,258 respectively.

Building Schemes, Lancashire.

The Lancashire County Council been asked to sanction application t Local Government Board for lea borrow money for the following purp £7,000 for adapting Peel Hall as a toria administrative block and ere new wards, and £1,500 for the provisi furniture and equipments: £4,000 fo erection of a police-station at Wyre I Fleetwood; £5,500 for the reconstru of the Chorley main road in Hor £2,474 for the erection and furnishi a special subject centre at Longr £9,982 for the erection and furnishi Oswaldtwistle Moor End Council Sc

FOR KING AND COUNTRY

Speaking at a recent meeting Leicester and Leicestershire Soci Architects, the president, Mr. C. Ken F.R.I.B.A., stated that over members of the R.I.B.A. were s with the colours, and the following bers of the Leicester Society of Arc were doing their share on behalf country:—Major H. L. Goddard, C R. M. Bedingfield, and Captain Baines (4th Leicesters), C. J. M. C (University Training Corps), Lieut. Barrowcliffe (5th Leicesters), Lie H. Woodhouse (12th York and La Regiment), and Privates J. B. Melh B. Matthews, W. S. Mills, and Symington (4th Leicesters), and J Goodacre (National Reserve, Notts

Mr. Alan Potter, chief recruiting at the Architectural Associatio Tufton Street, Westminster, infor that men who can pass the eyesig with their glasses will be accepted Territorial Engineers, and that for infantry regiments men 5 ft. 1 i with 34 in. chest can be accepted. Field Ambulance of the R.A.M.C. to receive men, also the Royal E

With further reference to the l ceived from a correspondent averri architects and surveyors joining t tary Engineering Corps were bein upon to undertake navvies' w would state that to every division o troops is attached a sanitary cor men (including officers); it is therefore, that the men of the Corps, who are concerned with water-supply, drainage, cook burial of the dead, etc., are in t city of supervisors and are not call (except perhaps in some special stances) to undertake the labour w correspondent infers is their usu It may be further mentioned navvies' battalion is now being o by the War Office, which should t further to relieve highly skilled heavy manual labour.

THE BOARD OF TRADE OFFICES COMPETITION.

Board of Trade, like the London ty Council, is at present carrying on ork in scattered offices, a state of s which obviously is very undesirable important Government Department: the scheme whereby the huge staff d be brought into one large building. a careful search for a suitable site it lecided to build on the area between hall and the Embankment which is ccupied by a group of miscellaneous s of various dates, chief among them Pembroke House, which is one of Villiam Chambers's designs, and in- some interesting interior decoration. site is trapezoid in shape, and being ificently open on its two long sides, n the very heart of official London, is ntly suitable. Here once stood the e of Henry the Eighth, and it is a of this, in the form of three vaulted bers known as "Cardinal Wolsey's s," which has been one of the details competitors have had to deal with eparing their designs for the new ng.

competition has been very properly cted. There was first a sketch com- on (the merit of which in saving a amount of useless labour commends to all who have the interests of archi- e at heart), and arising out of this, ompetitors were selected to submit ns in a final competition, each receiv- an honorarium of three hundred as. The ten selected competitors :

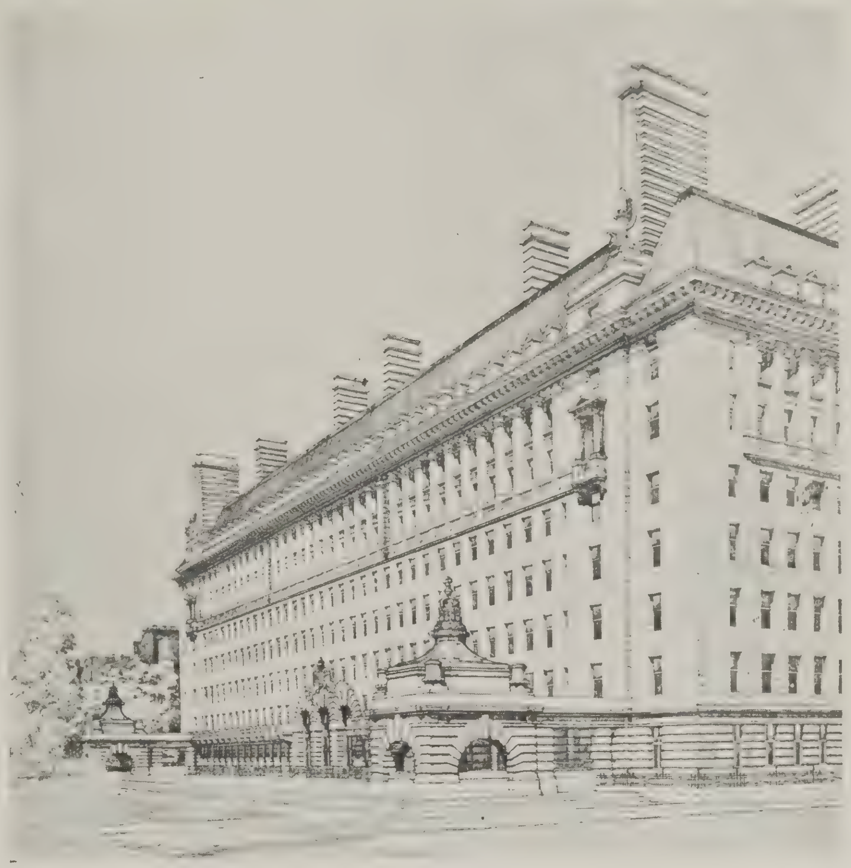
Percy Adams and Charles Holden.
T. Armstrong.
ley and Winton Newman.
inson and Alexander.
kland, Haywood, and Farmer.
Edwin Cooper.
arles Gascoyne and George Nott.
Vincent Harris.
k G. Horsnell and A. H. Brownrigg.
cy Thomas, Ernest Prestwich, and
vor Jones.

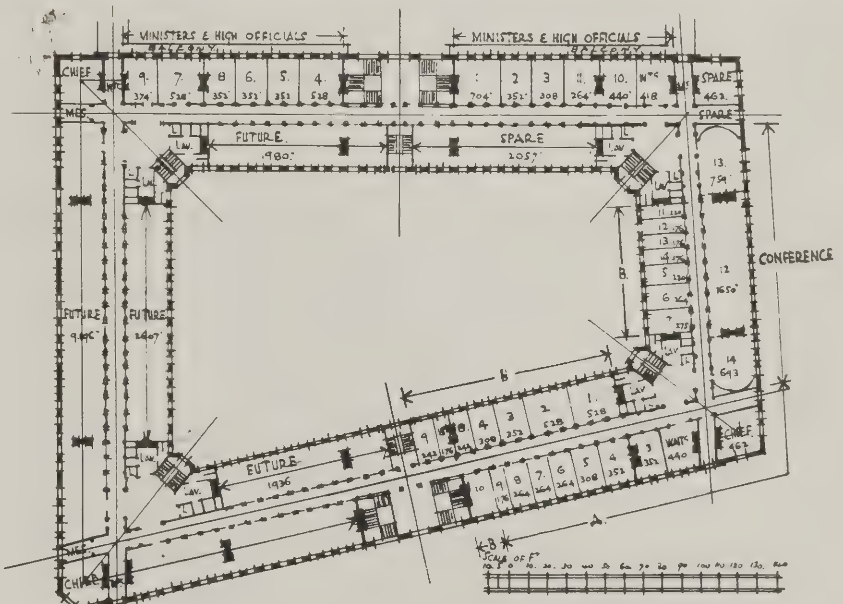
assessors were Sir Aston Webb, Mr. nald Blomfield, and Mr. Ernest on. Their award was made public riday last, when it was announced he design of Mr. E. Vincent Harris, ndon, W.C., had been recommended cceptance; that the First Commis- of Works had accepted the award; hat, in view of the present circum- es, the erection of the building would stponed.

designs are on exhibition this week next at York House, Kingsway (at trand end of that thoroughfare), be- the hours of 10 and 4. Here re shown in a room on the ground each competitor's report being hung ith his set of drawings, but at the of our visit, on the opening day, there no name appended to any of the de- —no indication even of the winning n—and speculation as to the author- was alone possible. Why the names not given is not apparent: such a ice is quite contrary to the accepted m.

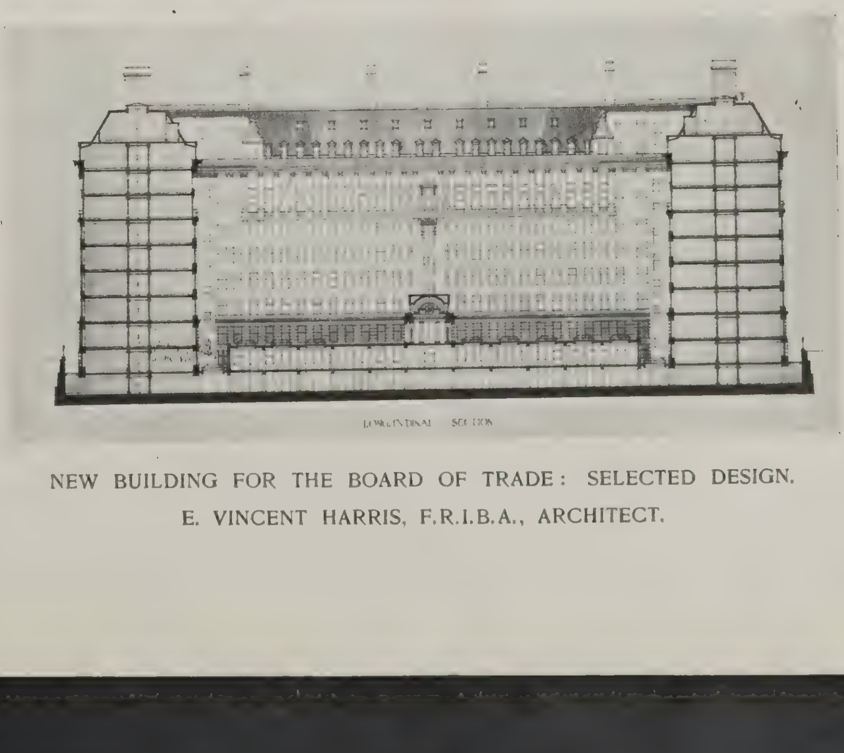
give herewith small reproductions of erspective and longitudinal section of inning design, together with a sketch of the principal floor; also sketch of three other designs. More ade- illustrations will be published next , but those now given will serve the nt purpose.

e subject of the competition is in some cts a very dull one, for the building is ore than an immense collection of

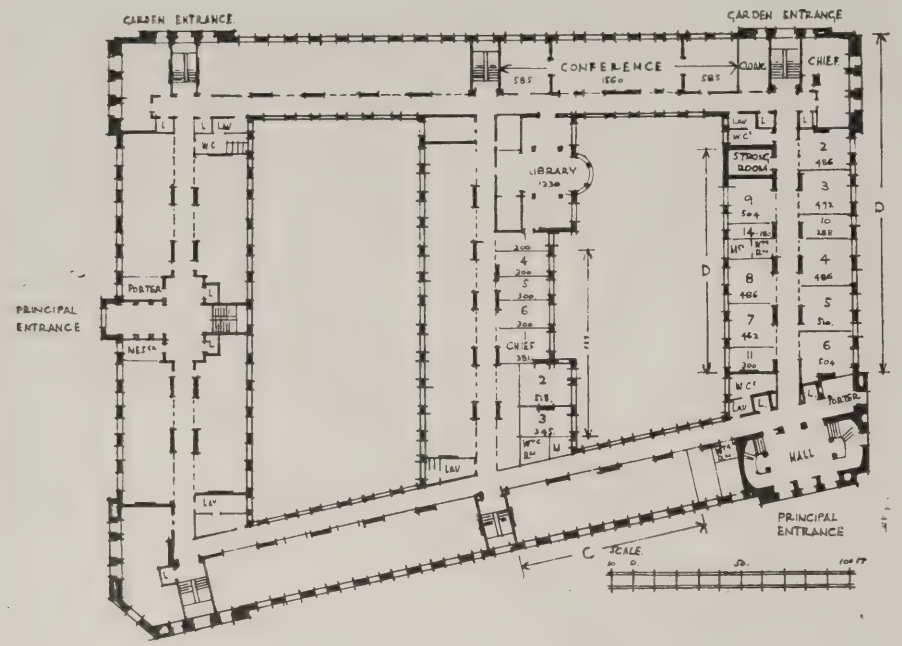




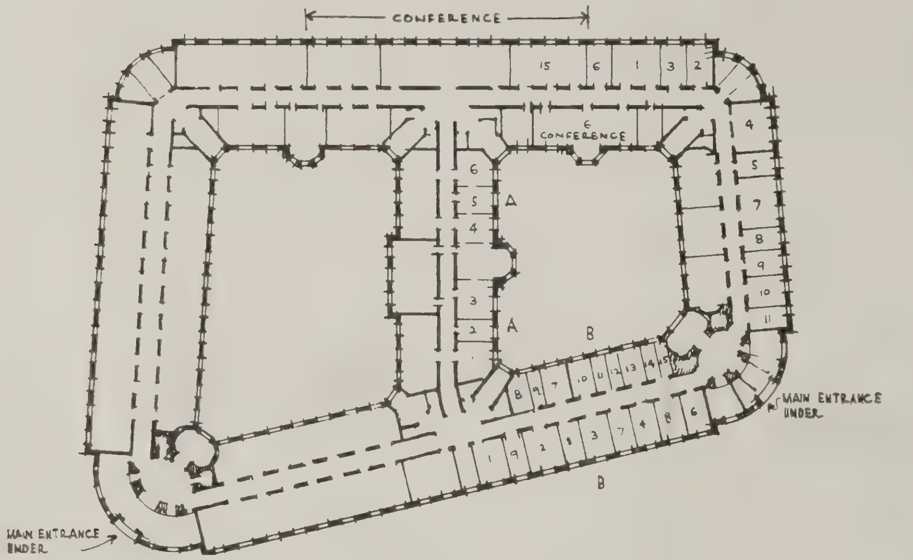
Sketch Plan of Principal Floor.



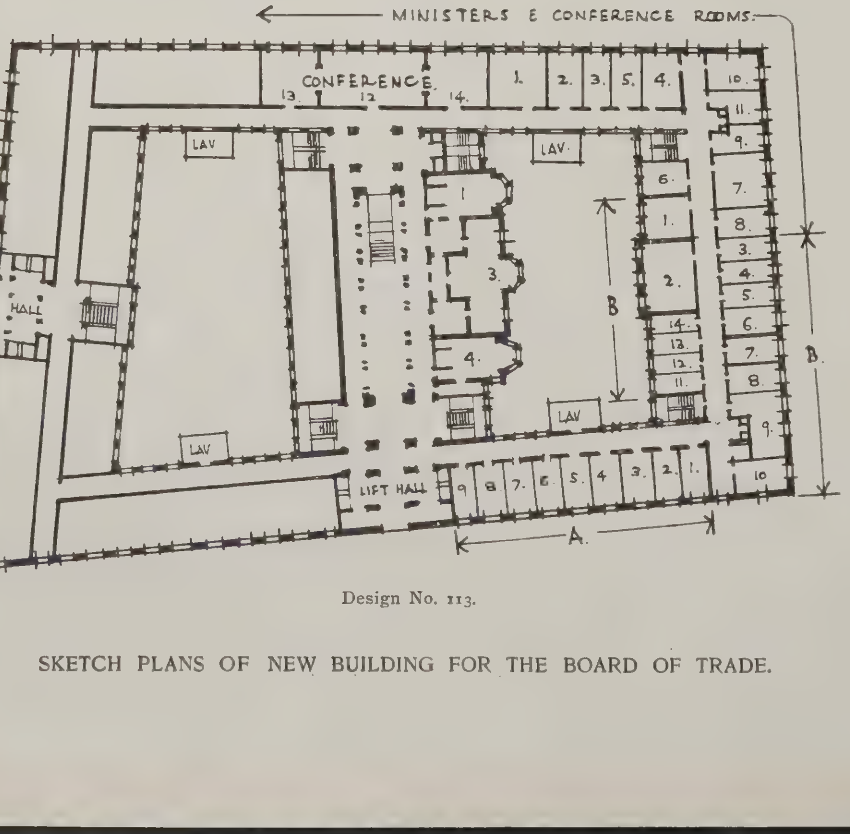
NEW BUILDING FOR THE BOARD OF TRADE: SELECTED DESIGN.
E. VINCENT HARRIS, F.R.I.B.A., ARCHITECT.



Design No. 154.



Design No. 94.



Design No. 113.

SKETCH PLANS OF NEW BUILDING FOR THE BOARD OF TRADE.

small offices, ranged tier upon tier,
three large conference rooms, a few g
sized offices for high officials, a libr
and, on the top floor, large dining r
for the staff. On the other hand it off
scope for a striking architectural exte
and, incidentally, presented the pros
of substantial fees on an ultimate exp
ture of more than half a million.

An awkward problem arose from
condition that only one half of the b
ing would be built at first, but far
difficult was the task of securing sati
tory light and air to the ranges of ro
It was an instruction to competitors
"there should not be more than tw
ternal courts, and these should be ke
large as possible," and studying the
with this in mind, one cannot app
several schemes which include a nu
of small courts grouped around a
central one. Designs numbered 64
177 are especially at fault in this
spect. Many of the competitors
adopted a two-court disposition, the d
ing block furnishing cross-communica
In the selected design it will be seen
the author has resolved his whole sc
into ranges of rooms around a s
court, with a corridor across on the gr
floor only, giving access to the confer
rooms and the offices of high officials
main entrances to Whitehall Gardens
the Embankment being axially in line
this corridor, and subsidiary staircases
trived in each of the four angles of
courtyard. Obviously this arrange
affords abundant lighting, but the ab
of cross-communication on every floor
surely be found a great inconvenience
large a building. From the first floo
wards, the only means of getting fro
office on one side to an office on the
is by the circuitous route of the encir
corridor, and, further, as regards the
ing of this latter, it seems very dou
whether windows at either end, with
rowed light over the doors to the ro
will render the corridors anything
gloomy. We understand, moreover,
this arrangement contravenes a cond
expressly stated, the ignoring of whi
quite unfair to competitors who
made a point of keeping to the
dition. Apart from these points,
selected plan appears to be excellently
trived, the grouping together of the "
toric rooms," instead of distributing t
being not the least commendable fea
Of the exterior architectural treatme
may be said that the design shows a st
broad character, the main outline
mass being dignified, and the fenestr
well handled. The little pavilions or
Embankment side are intended pre
ably to serve as a foil, but they have r
a theatrical appearance, and we shoul
regret their disappearance from the de

Among the other designs submitted
are several which are excellently pla
and display a fine architectural treat
externally. Among these are Nos.
172, 93, 94, and 113. Sketch plans of
of them are here shown. In the ca
No. 94 it will be noticed that the mai
trances are at the corners on the Whit
Gardens side, in No. 113 one entr
centrally on this side, while in No.
one main entrance is arranged on the
to Horse Guards Avenue, and anothe
the south-west corner of Whit
Gardens. In the plan of No. 172 the
ing is very carefully studied: we shall
an illustration of it next week, whe
propose to reproduce also three or fo
the perspectives. We could make a
as to who are the authors of the se
designs, but in view of the fact that
names are not definitely given we re
from the attempt.

ELECTRICAL NOTES.

"Eye-Rest" Indirect Lighting.

e have received from the British Thomson-Houston Co.,
, a new forty-page pamphlet containing many new patterns
adaptations of the "Eye-Rest" system of indirect lighting.
interesting to note that in about two and a half years the
ber of types of fittings offered by this company has in-
ed from two to about fifty, whilst the list prices have been
ced by about one-third. The introduction of the half-watt
has naturally considerably affected the system, and the
pamphlet includes a complete list of fittings suitable for
highly efficient lamps. To meet the objection of some
le that the source of light cannot be seen, new types of
gs have been introduced with the lower half of the bowl
ered luminous by means of an auxiliary lamp of low
le power. This translucence can be supplied in a number
lours, which are reproduced in facsimile in the pamphlet.

The Electrical Accessories Exchange Meeting.

der this title the Board of Trade (Commercial Intelligence
ch) organised recently an exhibit of German and Austrian
les, all ticketed and priced for the benefit of buyers
manufacturers, at their showrooms at 32, Cheapside. The
t, as with other similar exhibitions relating to various
s, was to put late buyers of such goods from the enemy
tries into touch with possible British manufacturers. The
r are invited, after inspecting samples, to communicate
the director of the department, who puts them into com-
ication with the buyers. The exhibit in question included
ric light shades, accessories, motors, medical apparatus,
, telephones, small lamps, etc., etc. With few exceptions
samples were of the most trashy description and one can
wonder that a sale can be found for such goods in this
try were it not for the well-known mania for cheapness. It
npossible to blame the makers, who only meet a demand
e worshippers of the god of cheapness. The real offenders
the public and the retailers—the latter primarily. The
ic do not know of such goods until they see them in the
lers' shop windows, and it is the small electrician-iron-
gers who create the demand by pandering to the weakness
e public. It is goods of this kind that can have no life
em which injure the good name of electricity, and as such
are to be deplored. Lampholders with shade rings
acquered polished brass at 2½d. each, which could be
npled in the hand of a strong man—these are the sort of
gs that are used by cheap electric wiring contractors. If
exhibition served no other purpose it was a warning against
class of work and material which has been employed and
h should have been condemned by the electricity supply
orities.

Simplex Novelties.

essrs. Simplex Conduits, Ltd., have issued a new edition
ection C of their general catalogue devoted to "Plexsim"
ing and cooking apparatus. Amongst novelties are a towel
r and a heavily lagged oven. The former, which can also
sed for airing clothes, is a useful device for the house.
tubular frame is white enamelled with nickel-plated fit-
s and is provided in the centre with a standard 600-watt
nplex" reel-type element, mounted between metal plates,
h it heats. The towels or clothes to be dried are hung on
rails, which are so spaced that there is plenty of room for
k circulation of air and drying. The advantage of this
of dryer is that the heat is constant and clean and that
articles on the rails cannot be charred if left too long.

he oven is made of sheet steel and is lagged all round to an
sual thickness, so that the heat losses must be very small.
inner shell is detachable to permit of cleaning and of
ss to the heating elements. The latter are also removable
can be easily renewed if necessary. They comprise two
watt units fixed at the sides and clear of the interior lining
are of the reinforced reel type of nickel-chrome wire wound
ubes of refractory material, the connections being claimed
e absolutely heat-proof. On the side of the oven a rotary
cating switch is fixed, giving three degrees of heat, and
a pilot lamp which glows when the oven is on circuit.
formity of air circulation throughout is achieved by suit-
perforations in the interior lining, so that an even tempera-
is obtained in the cooking space. The connector to which
flexible wire is attached is provided, for earthing purposes,
a metal shield and spring, and the latter makes contact
the oven case when the connector is pushed home on the
act pins. A hooded receptacle above the oven proper is for
ing dishes, and no separate heating unit is provided for
as the temperature attained is sufficient for the purpose.
oven measures 19 in. by 18½ in. by 15 in. externally, and
a cubical content of 1.1 ft., that is, about 1 kilowatt of
trical energy is expended per cubic foot of cooking space.

Whenever you require
METAL
TABLETS
of any type—
no matter whether
the lettering is to be
cast in brass or
bronze, repoussé in
copper, bronze or brass,
or engraved in brass,
we will gladly
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and quotations
without delay.

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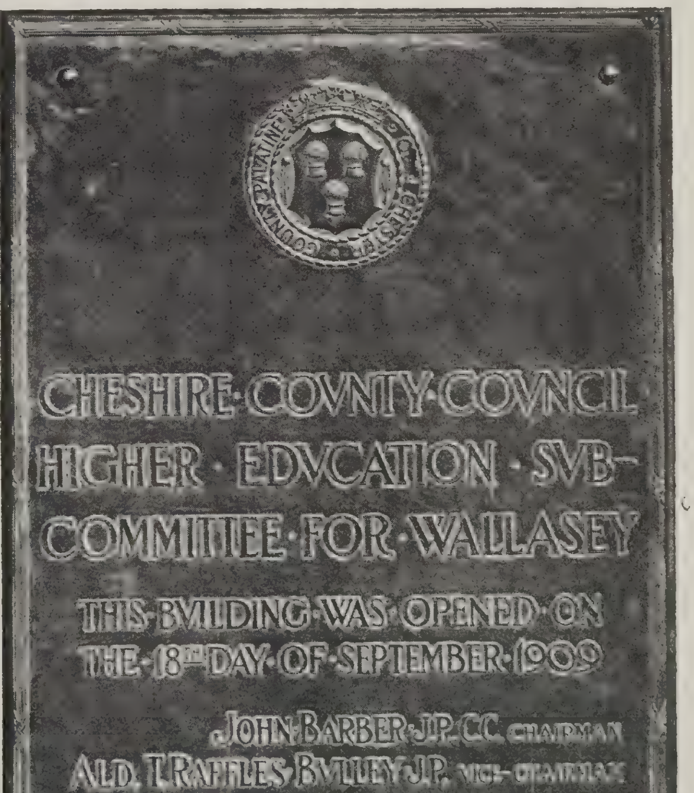
COUNTY PALATINE OF CHESTER
CHESHIRE·COVNTY·COVNCIL
HIGHER·EDVCATION·SVB-
COMMITTEE·FOR·WALLASEY
THIS·BVILDING·WAS·OPENED·ON
THE·18TH·DAY·OF·SEPTEMBER·1909
JOHN·BARBER·J.P.C.C. CHAIRMAN
ALD. T. RAFFLES·BVLLEY·J.P. VICE-CHAIRMAN
THOMAS·SAMVEL·B.A. SECRETARY
APPLEYARD & QVIGGIN A.R.I.B.A.
ARCHITECTS

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Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

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4 lines (about 28 words) 1s. 6d.; 3 insertions, 3s.

ADVERTISER with spare time is open to prepare estimates, accounts, quantities, or keep builders' books, on moderate terms by arrangement; very quick, careful worker, twenty-four years' experience in prices and routine.—Box 8994.

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ARCHITECT'S and Surveyor's Junior Assistant, age 21; neat and competent draughtsman; 4 years town and country experience; excellent references; moderate salary according to locality.—"C. G. S.," 49, Balfour Road, Ilford. 9139

ASPHALTE.—Measuring clerk desires engagement, fully experienced, 10 years present employment; highest references.—Box 9130.

BUILDER and Contractors. — First-class General Foreman; town or country or abroad; able to bring work out at competitive prices; good references from leading London builders; fourteen years' foreman experience on Council, W. Office and Office of Works jobs; age 39; carpenter.—B., 62, Theydon Street, Walthamstow.

BUILDER'S Assistant requires Appointment. Practical estimator. General foreman. Age 35. Used to supervise own jobs. Highest references.—H. D., Erin House, Station Road, Lydd. 9150

BUILDER'S Manager seeks engagement; twenty years' experience in estimating, quantities, drawings, supervision, book-keeping, and all office routine; age 40; first-class references. —A., 6, Loughborough Road, S.W.

GENERAL Foreman seeks re-engagement; town or country; new or alterations; carpenter and joiner by trade; good references.—H. C., 6, Marshal's Road, Sutton, Surrey.

GENERAL Foreman wants re-engagement; carpenter and joiner, draughtsman, and timekeeper; twenty years' experience; just completed £3,000 Government contract; moderate wages; London or country.—Foreman, 4, Upham Park Road, Chiswick, W.

PAPERHANGING wanted (piecework); high reliefs, anaglyptas, leathers, embossed papers, soirettes, tekko, fabricons, canvas, emdeca, and all latest productions; artistic panelling and special designs; town or country.—Logan, 49, Mostyn Road, Brixton, S.W.

TO Architects, Builders, etc.; capable steel draughtsman requires spare time employment at home; designs, details, quantities, etc.; terms moderate.—Box 9147.

WALKING or Working Foreman Decorator seeks Berth. Keen estimator. Used to large bodies of men. West-End experience. Able to supervise any branch and interview clients. Life abstainer.—A. G., 22, Melrose-avenue, Streatham-road, Mitcham. 9143

Competitions Open.

9d. per line.

CITY OF BRADFORD.

COMPETITION.

The Bradford Corporation invite COMPETITIVE DESIGNS for the RE-PLANNING of STREETS in the Central Area of the City of Bradford. Mr. Reginald Blomfield, R.A., will act as Assessor. First prize £500, second prize £300, and third prize £200.

Particulars may be obtained on application to the undersigned, accompanied by a deposit of £1 1s. 0d., but in case the particulars and plan are returned within ten days after receipt thereof then the deposit of £1 1s. 0d. will be returned

FREDERICK STEVENS, Town Clerk.
Town Hall, Bradford.
19th November, 1914. 9077

Appointments Vacant.

6d. per line.

ARCHITECT'S Assistant (Lancashire); thoroughly competent; must be experienced in cotton mill construction; write, giving particulars, age, salary required, etc.—Box 9133.

BUILDER'S Junior Clerk; accustomed to general routine; drawing and typewriting; state age, experience, and wages to Foster and Hill, Abergavenny. 9149

GLAMORGAN County Council Education Committee.—The Glamorgan Education Committee require the services of a Quantity Surveyor, for a period of six months, in the Architect's Department (Western Division). Salary three guineas per week. Forms of application may be obtained on receipt of a stamped addressed foolscap envelope. Applications, in candidates' own handwriting, accompanied by copies of not more than three recent testimonials, to be sent to the undersigned not later than the 15th instant.—W. James Nash, F.R.I.B.A., County Education Architect, Metropolitan Chambers, Neath. February 2, 1915.

MARBLE Mosaic.—A gentleman required with full knowledge of industry to develop this branch of well-known firm. Every encouragement given and good prospects for a suitable applicant.—Box 9153.

Miscellaneous.

6d. per line.

ARCHITECT'S small provincial practice or partnership required; succession to practice after sufficient experience.—Box 9148

BUILDER'S Business for Sale.—In consequence of the division of the estate of the late Mr. William Woods, of Hartford, Cheshire, the executors are willing to sell this old-established and successful business as a going concern; one or two members of the family will, if desired, remain interested in the business.—For particulars, etc., apply Chas. Healey, Accountant, 6, King Street, Warrington. 9141

BOOKS.—Books on Building Trades, Engineering, Educational, Literary, Technical, and all other subjects; second-hand at half prices; new at 25 per cent. discount; catalogue free; state wants; books sent on approval; books bought; best prices given.—W. and G. Foyle, 121-123, Charing Cross Road, London, W.C.

TO ARCHITECTS COMPETING.
SCHEMES & ESTIMATES FOR ENGINEERING WORK.

(Lighting, Heating, Ventilation, and Sanitation), and Architectural Metal Work, supplied free of charge of **STRODE & CO., Ltd.,** 48, Osnaburgh Street, London, N.W.

SECOND-HAND Optical Mart
For the Purchase and Sale of
LEVELS, THEODOLITES, DRAWING INSTRS.
—Clarkson's, 338, High Holborn, London, W.C. (Opposite Gray's Inn Road).

ARCHITECTS and Surveyors.—Partnerships.—Successions—or Amalgamations. For introductions to gentlemen with experience and capital available to purchase, or for particulars of partnerships and practices for sale, town or country, apply to Goodchilds, 29, Southampton Buildings, Chancery Lane, or 329, High Holborn, W.C. The recognised Partnership Agents for the Profession. Mortgages negotiated.

GLASS IN STOCK.—Bargain full cases, 16 oz. 3¾d. ft., 19 oz. 4¼d., 21 oz. 4¾d.; cut to size, 16 oz. 4½d., 19 oz. 5¼d., 21 oz. 5¾d., for quantities. Price for small lots or glazed windows on application. —C. Jennings and Co., Timber Merchants, General Woodworkers, 981, Pennywell Road, Bristol.

TYPEWRITING; architect's and builders' specifications and reports a speciality; testimonials copied; send for price list; prompt, cheap, and accurate.—Address. "Typist," Typewriting Office, 65, Marsham Street, Westminster. 9140

FOR Sale, Fletcher's History of Architecture; Architectural styles, Rosengarten; Emden's Building Contracts, Moore's Sanitary Engineering; new condition; also three-screw 15-in. level; cheap. (Yorkshire.)—Box 9142.

Contracts Open.

9d. per line.

COUNTY BOROUGH OF BARNSLEY

NEW TOWN HALL.

The Town Council invite applications
Builders desiring to tender in the wh
separate trades for the erection of a
Town Hall in Church Street, Barnsley.
Applications for Tender Forms and Spe
tions should be accompanied by a depo
two guineas (which will be returned on
of Tender), and should be made to the
Clerk, Barnsley, to whom Tenders shou
delivered not later than Thursday, Ma
1915.
The Corporation do not bind themsel
accept the lowest or any tender.

W. P. DONALI
Town Clerk's Office, Town C
Barnsley.
February 3, 1915.

DUNDEE TOWN COUNCIL.

NEW CITY HALL—FOUNDATIONS

Tenders are invited from experience
tractors for the manufacture and driv
about 700 Reinforced Concrete Piles, to
with other contingent Works, comprisi
Foundations of the New City Hall, Dun
The Plans, Specifications, Schedules of
tities, and Forms of Offer may be obtai
the office of the City Architect on and
15th inst. on deposit of the sum of £1
be returned on receipt of a bona-fide Te
Tenders, enclosed in envelope provid
the purpose, are to be lodged with W
Blyth Martin, Town Clerk, City Cha
Dundee, not later than 12 o'clock no
Monday, March 1, next.
The Town Council do not bind themse
accept the lowest or any Tender.

JAS. THOMSON
Municipal Offices, City Archi
91, Commercial Street, Dundee.
February 5, 1915.

Auction Sales.

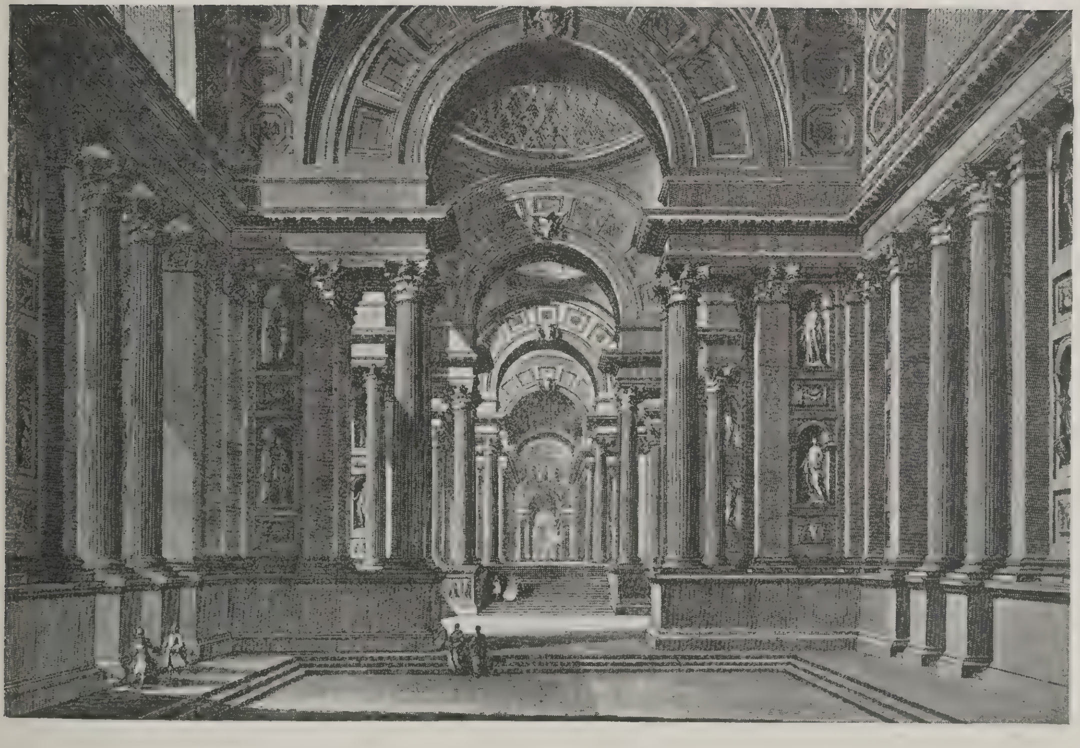
9d. per line.

By Order of The New Tivoli, Ltd
STRAND.
To Colonial or Corporate Bodies, Ins
Companies, Bankers, Land Societies
tractors, and Public Caterers.
THE TIVOLI SITE.
In the heart of Theatre Land.
A VALUABLE FREEHOLD BUILDI
PROPERTY OF
10,720 sup. ft.,
situate in one of
THE CHOICEST AND MOST PROMI
PARTS
of this World-renowned Public Thorou
having
THREE IMPORTANT FRONTAGES
122 ft. 6 in. to the south side of the S
91 ft. 8 in. to Adam Street, and 76ft. 11
Durham House Street, on which formerly
the Tivoli Theatre of Varieties and b
premises known as Nos.
65 to 70, 70½, 71, and 73, STRAND, and 17,
STREET.
THE SITE IS OPPOSITE THE ADE
THEATRE,
midway between Charing Cross Statio
the Cecil and Savoy Hotels, and is ce
placed for access to all parts of the
polis. The widening of the roadway now
carried out by the London County Coun
create
UNRIVALLED BUILDING ADVANTA
by which a lofty and noble block of pu
commercial offices, business premises,
tute, stores, high-class restaurant, or p
public entertainment can easily and ec
cally be erected, the site being prac
cleared down to a sub-basement level
the benefit of a massive retaining roa
recently erected to the Strand frontage.
VACANT POSSESSION WILL BE GI
MESSRS. FAREBROTHER, ELLIS, AN
are instructed by The New Tivoli, Ltd., t
by AUCTION, at the MART, Tokenhouse
E.C., on THURSDAY, MARCH 25 next, a
o'clock precisely, the above highly imp
FREEHOLD BUILDING SITE.
Particulars, with plans and conditi
sale, obtained of Messrs. GOVER &
Solicitors, 12, Old Jewry Chambers,
Messrs. H. H. WELLS & SONS, Solicit
Paternoster Row, E.C.; at the AU
MART; and of the AUCTIONEERS, 29,
Street, E.C.

THE
ARCHITECTS' & BUILDERS'
JOURNAL.

Wednesday, February 17, 1915. Volume XLI. No. 1050.

No. 123.



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 17, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1050.

EDITORIAL.

DRAMATURGISTS claim that the abstract effects of tragedy cleanse, strengthen, and purify. A war of the magnitude of that now raging produces, on that showing, tragedy enough to purge the world of much perilous stuff. In suddenly cutting off our imports of many commodities for which we were largely dependent upon foreign countries, the war has already had a bracing effect on home industries. Put upon their mettle, our manufacturers are proving themselves equal to the occasion. For example, the shortage of ordinary sheet window-glass has brought into play the inventiveness of British manufacturers, and one well-known firm announces the production, by a rolled process, of a new make of glass which can be confidently offered as a substitute for sheet-glass for many important purposes. Under ordinary conditions, we might not have thought it desirable to mention editorially a manufacturing matter; but the circumstances being quite exceptional, we do not hesitate to draw attention thus prominently to an incident that, being presumably by no means isolated, may be taken as an encouraging sign of the general development of home industries that is certain to ensue as an effect of the war.

* * * *

After a somewhat protracted period of incubation, the revised Schedule of Professional Charges has been at length brought to a definite issue, and now awaits but the final delicate attentions to its toilet which only the Institute's solicitors are competent to give it. Not that it will immediately thereafter be introduced to society; "the present," as Mr. George Hubbard gracefully said, "was not a propitious moment to lay a new scale of charges before the public." It can well be imagined that the psychological moment at which the public will be prepared to welcome it with manifest enthusiasm will have to be chosen with very subtle discrimination. In the meantime the document is to be printed "in readiness for publication." Were it not that, as newspaper writers are fond of saying, "the war upsets all calculations," it might be possible to compute by mathematical process, in accordance with the doctrine of probabilities, the approximate date of disclosure, given as factors in the problem that the matter was first referred to the Practice Standing Committee five years ago, that a new schedule was submitted to the Council in 1911-12, that a further revised version was submitted to the Institute in 1913, and that the final sitting on it took place on February 1 of the present year.

* * * *

A member who inquired, "When will the new Schedule come into force?" might have been referred to the companion question, "When will the war end?" but for the fact that the document cannot be said to have any real force, except as an occasional exhibit in the law courts and as an instrument for the prevention of competitive tendering by architects. On authority we have been told that "it was to be lo upon as a permissive and advisory document. cases in which the Schedule must be strictly obse were those, of which there had been unfortu instances, where local authorities had invited ten from architects with a view to undercut rates. In cases for anybody to undercut rates was to com breach of professional etiquette. Apart from cases every member could use his own discretion judgment."

* * * *

It is well—indeed, it is obviously necessar have a standard of authority in such matters, and object is perhaps worth all the skill and care that been devoted to the preparation of the new Sche although there are those who hold—strongly, perhaps rather rashly—that such a document shou something more than "permissive and advisor something less than "penalising and coercive." As as it is possible for an architect to regard the Sch as a mere expression of pious opinion, somethi may ignore with impunity unless he is c tendering to a local authority, undercutting w rampant. When undercutting is public and prom it is to be penalised because it can be. When private, and not so easily discoverable, the under is immune. He is allowed to use in secret the "disc and judgment" which could not be tolerated in petition of a more formal character. Even o showing the Schedule has considerable value standing admonition; and its mere existence as a protest must give the undercutter many a twin conscience, always supposing that he is not too to have developed one, or that he is not too exig afford indulgence in such a luxury. Humane for the younger members of the profession, who be placed at an obvious disadvantage if they compelled to compete on equal terms with m larger and riper experience, is a considerati considerable weight, and is not the least pot objections to general and indiscriminate enforc of a fixed scale.

* * * *

Admittedly the question of fees is as intricat is delicate; and there is only too much rea suppose that if, after five years of earnest conside of the subject in all its bearings, no satisfactory of enforcing an equitable scale of charges has found, the problem is impossible of solution, th difficulty being, no doubt, as much a matter of pr as of policy. A cast-iron or Procrustean scale, w automatically and enforced with rigour upon me only, but wholly innocuous to outsiders, would the Institute from the honourable status of a sional body to something like the level of a mer union. This, it is true, is not the effect of th scribed for the legal profession, nor of the perhaps htly more flexible minima prevalent among medical n; but in each of these instances the scale is lised by the strict protection of a close corporation inst the competition of outside practitioners. Until itects are similarly protected, it would be vain, or eed suicidal, to penalise membership by a rigid rcement of a scale of fees. Here again, as in so y other instances of baulked progress, Registration gests itself as the remedy. Until architects acquire cognised status comparable to that of the legal or he medical profession (which professions, however, free from the art element which to some extent arrasses the situation for architects), the Schedule Professional Charges must remain "a permissive advisory document." Even so, the pains taken to g it into conformity with modern conditions have n by no means wasted, and we sincerely congratu- the revisers on the excellent service they have dered to the profession by devoting themselves so lously to their long, onerous, and arduous task.

* * * *

or the third time in its history the Royal Gold lal crosses the Atlantic. In 1893 it was awarded ichard Morris Hunt, and in 1903 to Charles Follen Kim, both of the United States. The Council of Institute now submit to His Majesty the name of Canadian architect, Mr. Frank Darling, of the firm arling and Pearson, of Toronto. as a fit recipient the current year. This honour, we doubt not, will highly esteemed in loyal Canada, which, as a ntry, shares the distinction in so far as it has rded the architect the opportunities without which ould not have attained, as representing Canada, to eminence implied by the award of the Institute's d Medal. Mr. F. S. Baker, F.R.I.B.A., of Toronto, paper read before the R.I.B.A. on January 20, 1913 d his appearance on that occasion was a gratifying of the growing interest in Canadian architecture entioned that in the Provinces of Quebec, itoba, Saskatchewan, and Alberta, the Universi- including Ontario, grant degrees in architecture, wing upon special courses of instruction in that ect, and he added the interesting if invidious ment that the best of these university schools of itecture was at McGill, Montreal.

* * * *

is doubtless a consequence of the influence of e schools that already in Canada, as Mr. Baker , "the Classic orders are fairly well understood, value of proportion is appreciated, and the applica- of ornament and mouldings is handled in a ervative way." What is meant by "a conservative " is a matter for individual interpretation. To some ay mean mere literal copying, to others a whole- e respect for principles which nevertheless admits reedom and flexibility, and it may be hoped ity in the adaptation. Canada being a big try—extending, as Mr. Baker quaintly put it, over y-five hundred miles—shows varying climates and r conditions that demand architectural considera- ; and immigration supplies the further elements of ation through race and creed. French influence is strong in Lower Canada, and is seen in solid old e houses with high, steep roofs, gable ends, lded springer stones, and small dormers. In dia and the Maritime Provinces the influence is ifestly British, and is particularly observable in arly-nineteenth century Houses of Legislature in a Scotia and the Halifax Government House. veen 1840 and 1850, a number of refined and excel- buildings were erected in Montreal in the Greco- ian style, such as the banks of Montreal and of sh North America, and that these were usually the of British architects was a natural consequence e extreme youth of the country.

Romanesque was adopted for the city hall and the Houses of Parliament in Toronto, and for the Library and Physics Building of McGill University Montreal; and examples of Renaissance design are the Houses of Legislature at Victoria, British Columbia, several bank buildings in Vancouver, various mercantile and civil buildings in Toronto and Montreal, including Laval University, the more recent buildings at McGill University, and, in Quebec, the Houses of Legislature. An adaptation of Scottish Baronial is seen in the Royal Victoria Hospital at Montreal, and the château architecture of the Loire Valley is reflected in the Château Frontenac at Quebec. The recently completed Legislative and Executive Buildings for Regina, Saskatchewan, by Messrs. Edward and W. S. Maxwell, show free Renaissance treatment. In the more recent bank buildings, in which Messrs. Darling and Pearson have had a large share, there is observable an agreeable refinement on the more lavish sumptuousness of the United States examples, as may be inferred from the illustrations of some of Messrs. Darling and Pearson's work given in an article on "Architectural Bronze and Iron Work in Canada" in the "Architectural Review" for August, 1914, where are shown an interesting doorway of the Union Bank, Toronto; bronze entrance doors to the Bank of Commerce, Vancouver; and the counter railing of the Winnipeg Bank of Commerce; which were all designed by the firm of which this year's R.I.B.A. Gold Medallist is the head. Altogether, the outlook for architecture in the Dominion is to the full as promising as this allocation of the medal may be taken to imply.

* * * *

Nor tears nor prayers have prevailed, and "Boswell's House" is no more. It was in the hands of the housebreakers before the ink was dry on the last letters of protest. It was put to the pickaxe with a haste that suggests that the Freemasons were either sick of a controversy that had degenerated into something like an unseemly wrangle—at Spring Gardens the word Huns was mentioned—or were eager to put themselves beyond the possibility of relenting. London is the poorer, and the delectable district of Great Queen Street is lorn of an interesting building. "In the Fields," says John Timbs, "was often set up, until its final abolition, the Pillory." Its abolition seems to have been premature.

* * * *

It is strange that so indefatigable a topographer as Mr. Laurence Hutton should have missed out the house in Great Queen Street from the list of lodgings that show the several "flittings" of James Boswell. In 1763 he removed from Downing Street to the bottom of Inner Temple Lane; in 1768 he was in Half-moon Street, Piccadilly; in 1769, in Old Bond Street; in 1772 in Conduit Street; and in 1795 he died at 47, Great Portland Street; but Hutton says never a word about his lodging in Great Queen Street—an omission that is the more unaccountable, seeing that he duly records the residence in that street of two of Boswell's contemporaries—the elder Colman and Franklin.

* * * *

Freemasons' Hall, in Great Queen Street, was begun in 1775, from the designs of Thomas Sandby, R.A., Professor of Architecture in the Royal Academy, and was opened almost exactly a year after. It was said of it that it was "the first house built in this country with the appropriate symbols of masonry, and with the suitable apartments for the holding of lodges, the initiating, passing, raising, and exalting of brethren," the Grand and other lodges having until then assembled in the halls of the City companies. The hall is 92 ft. by 43 ft. by 60 ft. high, and will hold 1,500 persons. Its interior is decorated with fluted Ionic pilasters; and throughout the room, in the frieze, are masonic emblems, gilt, upon a blue ground. It is this imposing building that has killed its more modest neighbour.

HERE AND THERE.

OFTEN I have been sorry to see the havoc wrought around the entrance to a new office building on which the architect had expended much time and care. There has been, perhaps, a pair of pillars supporting a pediment, the nice proportion of which was the subject of particular attention, but no sooner were the first tenants installed in the building than aggressive brass plates were clapped around each column, thereby destroying all the good appearance which the design once presented. Or, to take another case, brass plates with heavy block lettering have been promptly fixed across the pilasters flanking the entrance. And the climax has been reached with the advent of commonplace gilt lettering affixed to the façade in total disregard of all propriety and seemliness. For all of which I am ready as anyone to give balm to the architect's soul, and, as a matter of practical aid, to arraign the offenders. But in not a few cases this unsightliness has been brought about through the forgetfulness of the architect himself. When he designs a commercial building he knows beforehand what the occupants will require, and a panel on either side of the entrance, treated as an integral part of the design from the commencement, would in many cases serve to forestall the untutored defacer; and the unfortunate effect which is so common would be altogether overcome if some standard type of good lettering were adopted for the removable name-plates that would fill the panels. A better place for such name-plates is, of course, within a frame in the vestibule, and it is gratifying to notice that this is a practice which is being increasingly followed. But often the demand is for outside lettering, and the architect is only inviting disappointment if he neglects to take note of this.

* * * *

There are, too, many other practical points which need to be remembered. A house on a sunny site will need some outside protection for its windows during the heat of summer, and it is far better for the architect to bear sun-blinds in mind when he is working out his details than that the provision of these should be left to the tender mercies of the jobbing builder who may be called upon to fix the necessary fittings. And in a complex world the requirements of the telephone service are not insignificant. That there is occasion for greater attention to this matter is apparent from a circular letter which the Postmaster-General has addressed to the architectural associations throughout the kingdom. The letter, which may be given here without further comment, runs as follows: "The Postmaster-General wishes to call attention to the importance of making adequate arrangements in the plans of large buildings for the installation at a later stage of telephone equipment. Failure to do so leads to complaints owing to the inevitable interference with the structure and decorations of the building, and the noise caused by piercing walls and floors. It also delays the installation of the telephone and increases the costliness of the work involved. In these circumstances it is to the advantage of all concerned to make adequate provision for telephone as well as for light, water, and other services in designing a building, and it has occurred to the Postmaster-General that members of the association may be glad to have some information as regards the accommodation required for this purpose. For the telephone service of a large building provision should be made, as a minimum, for one three-inch pipe from the public footway to the basement or ground floor and for cables to the other floors. It is also desirable that there should be a ready means of leading wires to the various rooms on the different floors. The precise requirements vary according to circumstances, but they can be definitely ascertained in any particular instar
from the local Post Office engineer, whose address m
be obtained at the nearest telegraph office."

* * * *

It has often been protested that the publication
the love-letters of great men after their death is
intrusion which can in no wise be defended; and
way of answer to that contention it has been point
out that a man's real thoughts and character
nowhere more evident than in those intimate a
personal documents expressing his affections. Her
in giving here the love-letter of a great architect I
find good precedent. Sir Christopher Wren, as a m
has won himself in our remembrance by reason of
generosity, the urbanity, and the honesty that mark
his career. Heart and intellect were combined
him in such a manner that we can readily echo Hoc
tribute. The largeheartedness of the man attracts
indeed, no less than the clarity of his genius. W
surely must claim place with the great gentlemen of
country, just as we accord honour to the intellect wh
all but anticipated Newton in his momentous discove
and stamped Wren as a great astronomer, mat
matician and scientist long before he became
architect at thirty. It is a kindly nature and a k
mind that peer out upon us from that portrait
Kneller, and the few letters of Wren that have co
down to us serve to emphasise the impression we g
in studying his character and his achievements.

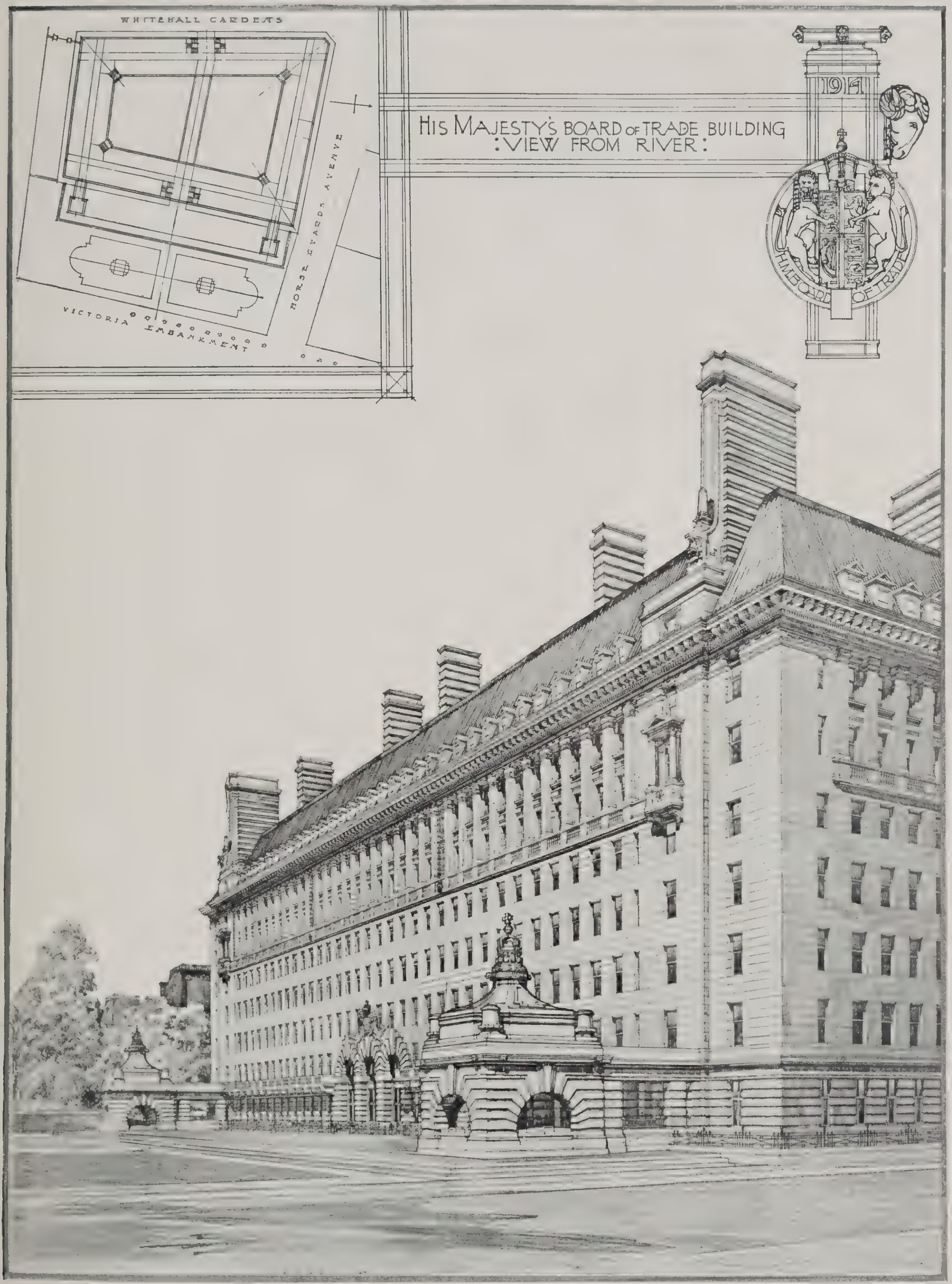
* * * *

Wren married twice, and the love-letter here quo
was written to Faith Coghill, who became his first
on December 7, 1669. The lady had dropped
watch in the river or the sea, and had handed it
Wren, who, in returning it repaired, expresses him
with odd humour—even what may appear to s
moderns as a stately politeness out of keeping
a love-letter: but the epistle is representative of
man as of the manner of his age, standing in
same relation to a modern epistle of the kind
minuet does to rag-time. The letter runs as follo
"Madam,—The artificer having never before mett
a drowned Watch, like an ignorant physician has
soe long about the cure that he hath made me
unquiet that your commands should be soe
deferred; however, I have sent the watch at last
envie the felicity of it, that it should be soe neer
side, and soe often enjoy your Eye, and be consu
by you how your Time shall passe while you em
your hand in your excellent workes. But have a
of it, for I put such a Spell into it that every Bea
of the Ballance will tell you 'tis the pulse of my H
which labours as much to serve you and more Tr
than the watch; for the watch I believe will someti
lie, and sometimes perhaps be idle and unwillin
goe, having received so much injury by being drenc
in that briny bath, that I dispair it should ever
Trew Servant to you more. But as for me (unless
drown me too in my Teares) you may be confide
shall never cease to be, Your most affectionate, hu
servant, CHR. WREN."

* * * *

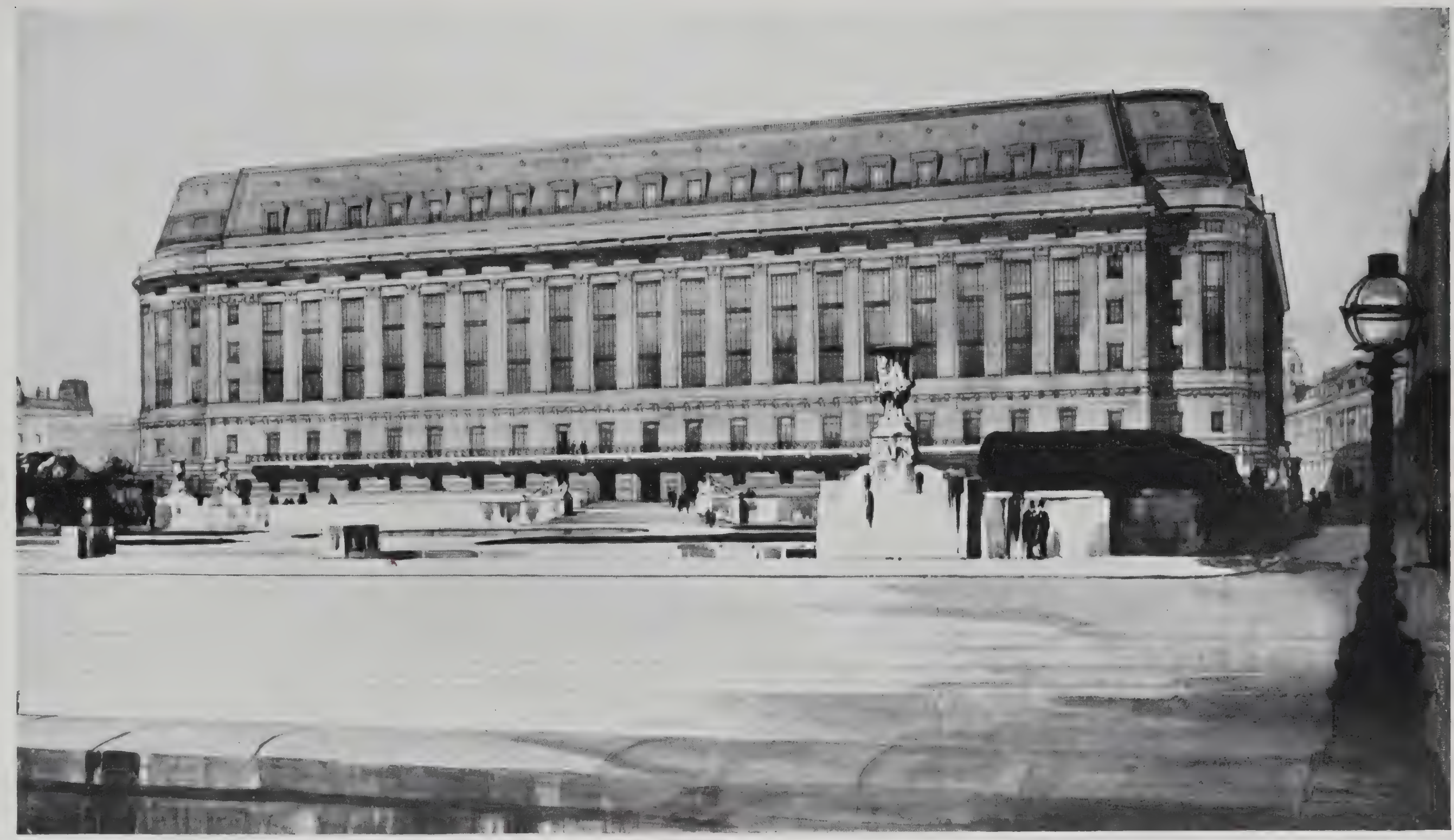
While referring to Wren it may be noted how
Christian name was repeated in succeeding ger
tions. While guarding against the monoton
repetition which finds classic illustration in
begatting of the sons of Noah, we cannot avoid
style. Sir Christopher, then, had two sons by his
wife, and one of these was named Christopher,
(married 1706) had a son called Christopher,
(married 1737) had a son called Christopher,
(married 1772) had a son called Christopher Ro
Wren (married 1815); so ending the list: thou
lineal descendant of Sir Christopher is found to-d
the Rev. C. F. C. Pigott.

UBIQU



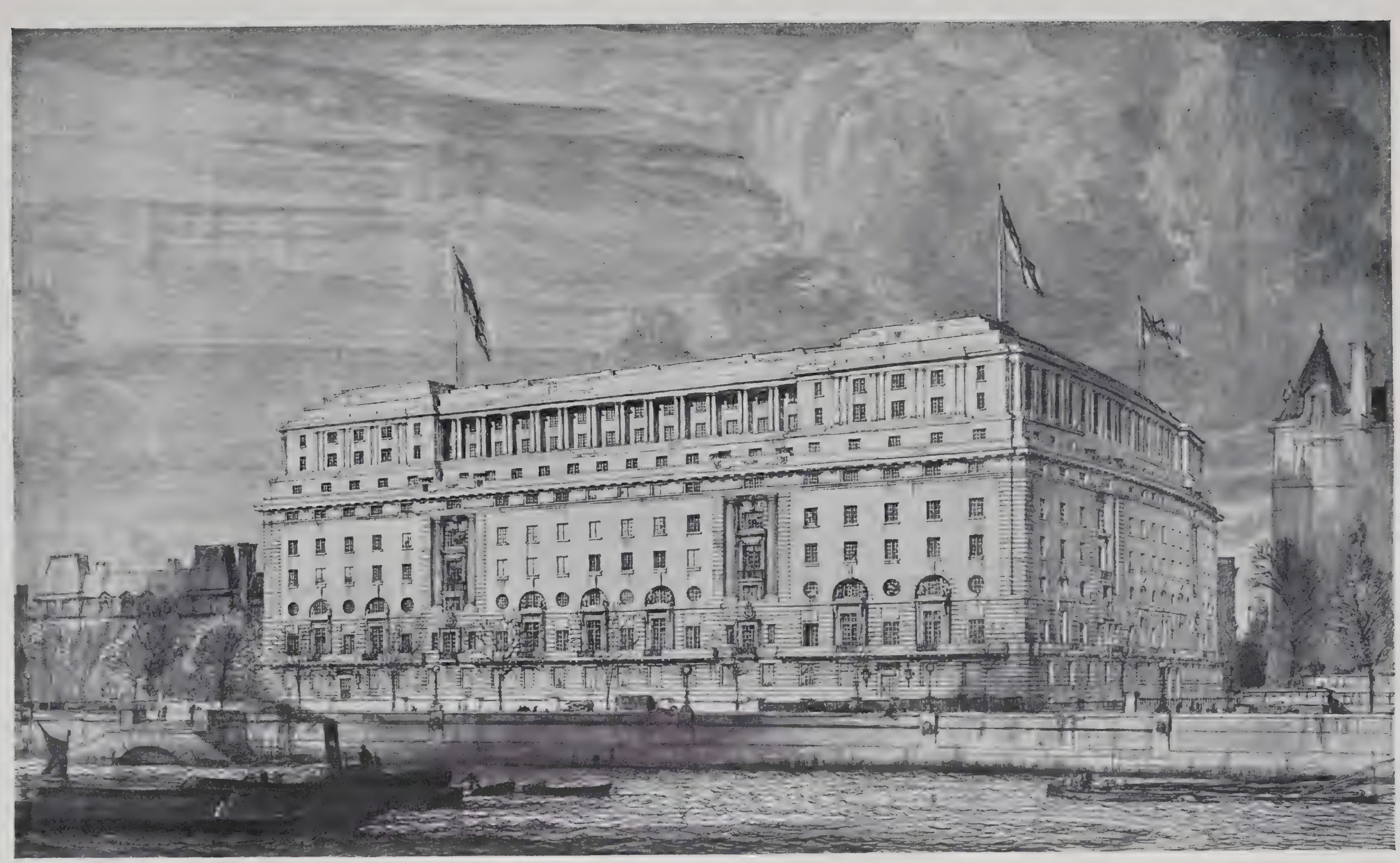
CURRENT ARCHITECTURE (SERIES II.). V.—NEW BUILDING FOR THE BOARD OF TRADE, LONDON: SELECTED DESIGN.

E. VINCENT HARRIS, F.R.I.B.A., ARCHITECT.



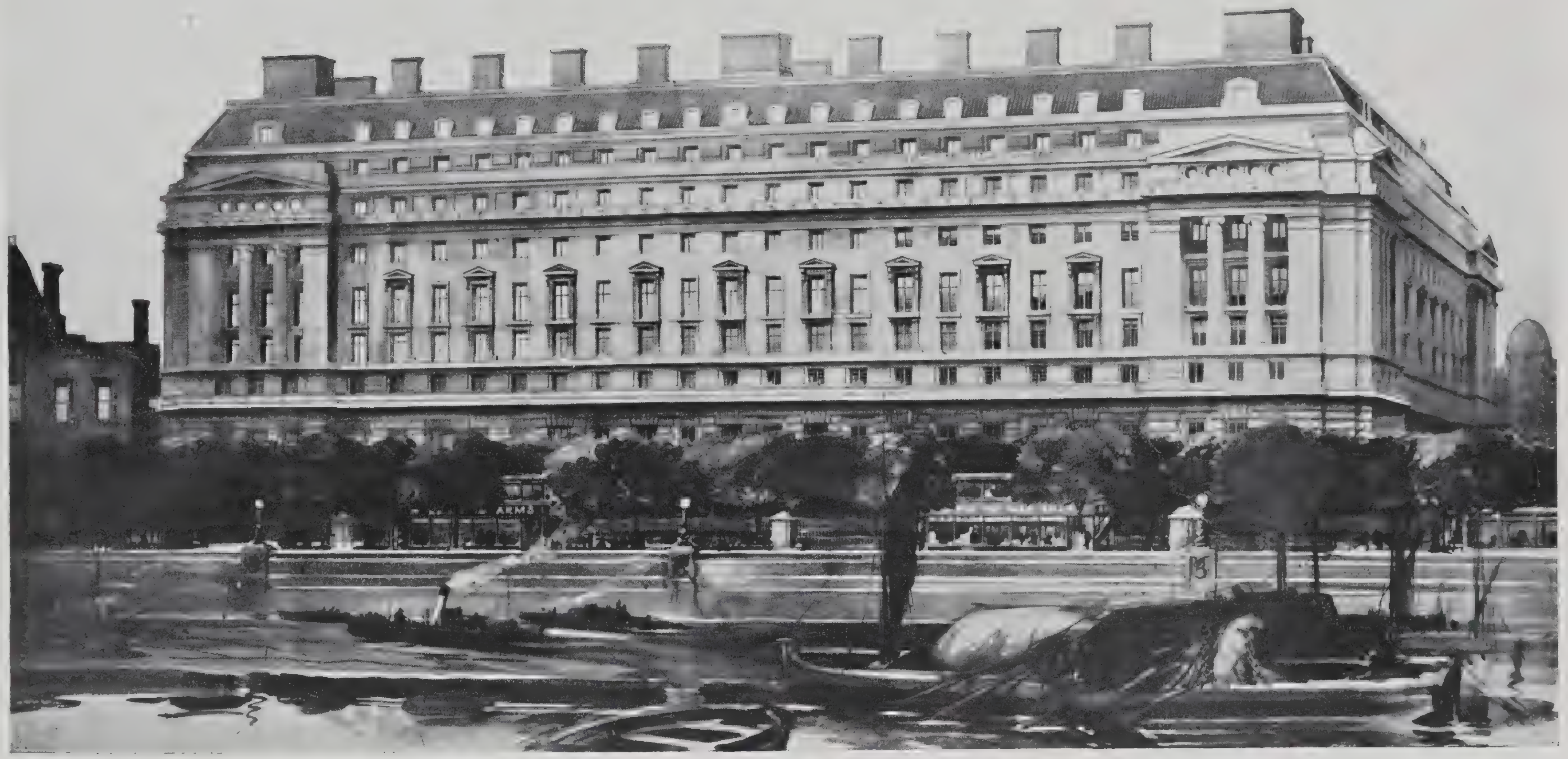
CURRENT ARCHITECTURE (SERIES II.). VI.—DESIGN FOR NEW BUILDING FOR BOARD OF TRADE, LONDON.

ATKINSON AND ALEXANDER, ARCHITECTS.



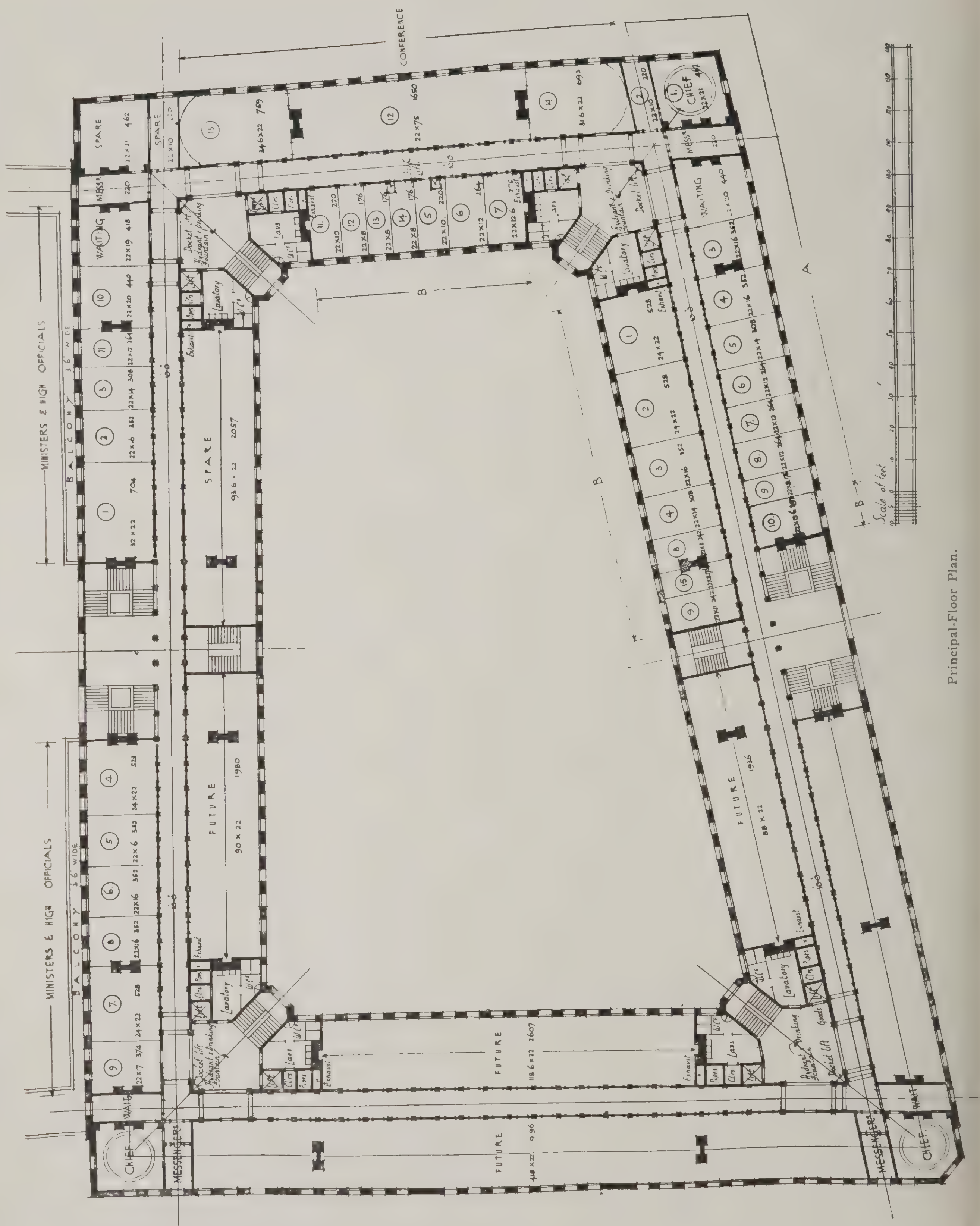
CURRENT ARCHITECTURE (SERIES II.). VII.—DESIGN FOR NEW BUILDING FOR BOARD OF TRADE, LONDON.

H. PERCY ADAMS AND CHARLES HOLDEN. ARCHITECTS.

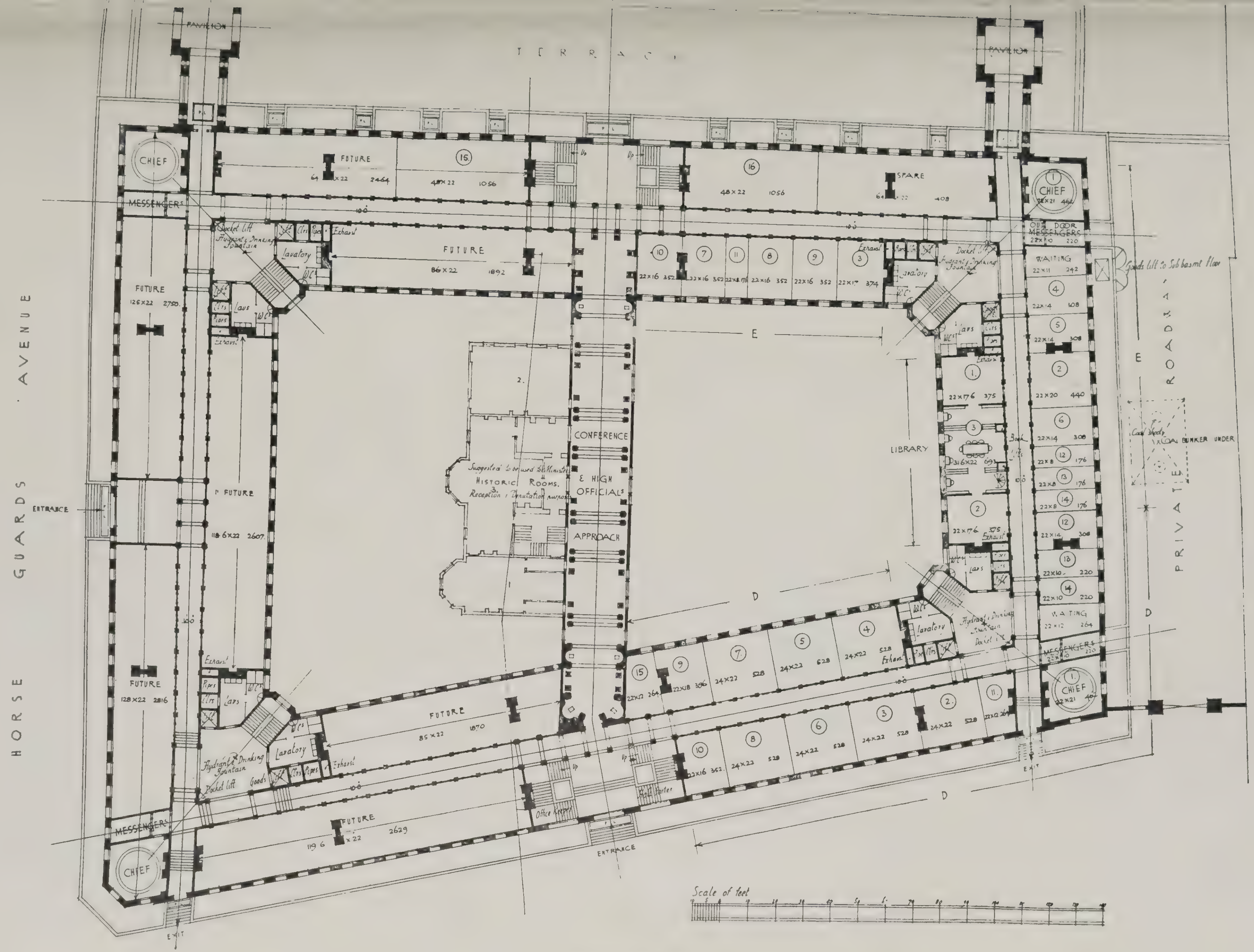


CURRENT ARCHITECTURE (SERIES II.). VIII.—DESIGN FOR NEW BUILDING FOR BOARD OF TRADE, LONDON.

GASCOYNE AND NOTT, ARCHITECTS.



Principal-Floor Plan.



Ground-Floor Plan.

CURRENT ARCHITECTURE (SERIES II.). IX.—NEW BUILDING FOR BOARD OF TRADE, LONDON: PLANS OF SELECTED DESIGN.

E. VINCENT HARRIS, F.R.I.B.A., ARCHITECT.

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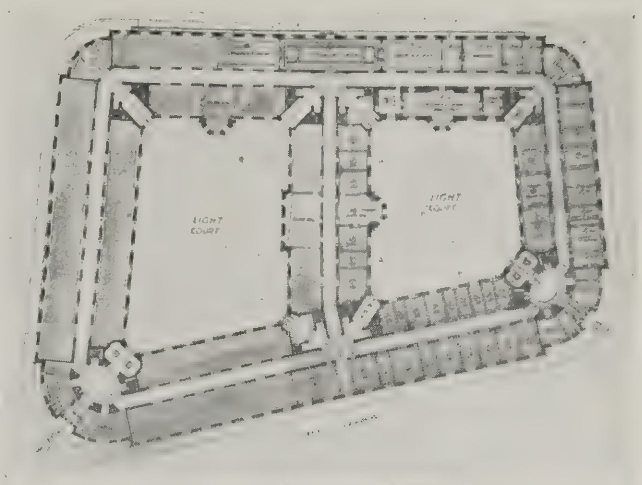
THE PLATES.

Designs for Board of Trade Building.

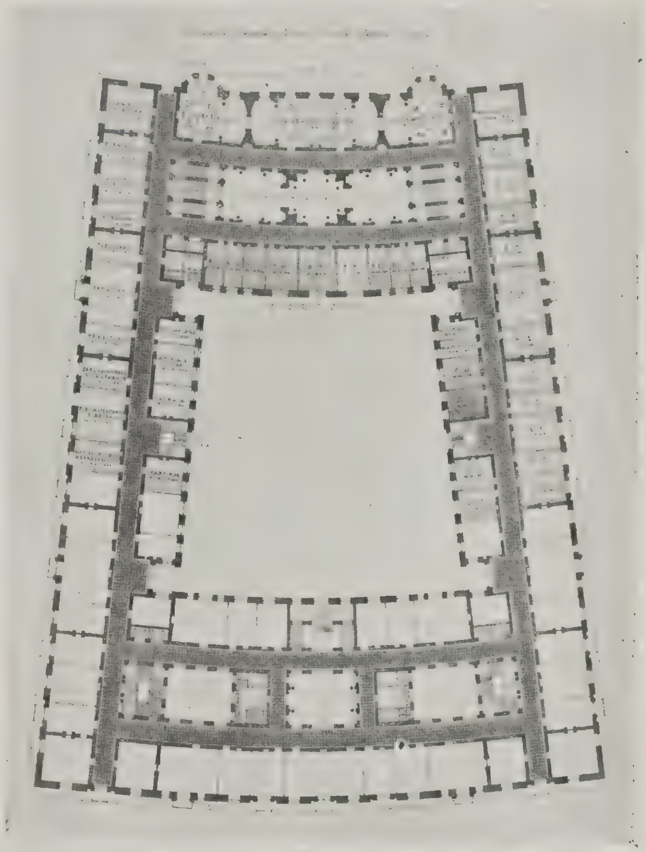
N our issue for last week we published a small reproduction of the perspective of the selected design for the new building for the Board of Trade, gether with sketch plans. In the present issue we ve plates of the selected design, by Mr. E. Vincent arris, F.R.I.B.A., and of three other designs which mmend themselves to us, namely, the designs by essrs. Atkinson and Alexander, Messrs. Adams and olden, and Messrs. Gascoyne and Nott. Having ready gone into the points which called for notice in nnection with this competition, we do not propose w further to enlarge upon them. But we think it of terest to publish the following terms of the assessors' vard, made public since we went to press with our sue for last week. Reporting to the First Commisoner of Works, Sir Aston Webb, Mr. Reginald omfield, and Mr. Ernest Newton say: "In cordance with your instructions, we have carefully nsidered the ten sets of designs submitted in the final mpetition for this building. In our opinion alterans of importance would have to be made before any the designs submitted, including the one we have lected, could be successfully carried into execution. hile fully alive to certain defects in the selected sign, we consider that these defects can be remedied thout materially altering the scheme, and we are animously of opinion that No. 5 is on the whole the st, and we therefore recommend that, subject to the nditions of the competition, the author of No. 5 be pointed architect to the new building." (Design . 5 is, of course, Mr. Vincent Harris's.)

The arrangement of the ground and first floors of the ected design can be studied from the plans produced as a double-page plate in this issue. ferring to these, it may be mentioned that the commodation on the ground floor includes conference ms on the Embankment front, a library on one side the south courtyard, and Departments D and E on rest of this courtyard and facing Whitehall rdens and the new private roadway which is to be med on the south side of the building. On the first or are the principal conference rooms, on the south e, rooms for ministers and high officials facing the bankment, and accommodation for Departments and B. On the sub-ground floor, below the court, main space is apportioned to a stack room, while the second floor and the floors above are departntal offices, and large dining rooms for the staff, h kitchens, on the top floor. The "historic rooms" .e., the relics of the Palace of King Henry VIII. ich formerly occupied the site—are, it will be noted, uped together in the north courtyard. It is suggested t they could be used as ministers' reception and utation rooms. The huge size of the contemplated lding—which is proposed to be erected in two tions—can be gauged from the fact that accommoion for 3,800 people in it is provided. The mated cost is—9,413,980 cub. ft., at 1s. 2½d., 8,761.

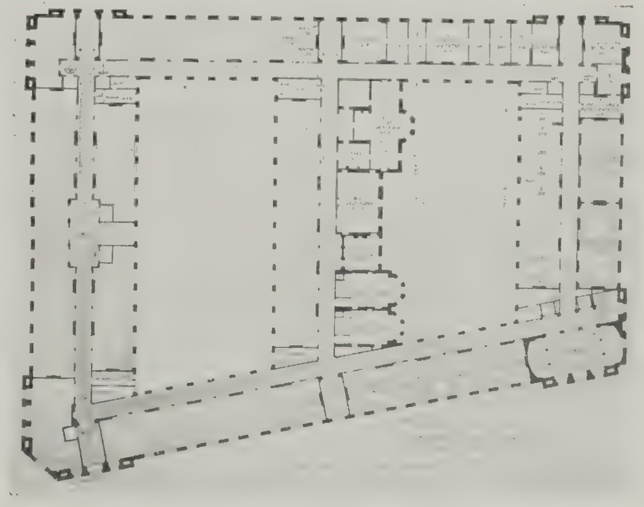
he design by Messrs. Atkinson and Alexander is nped with character throughout, and the pilaster tment of the façades is effective, though rather otonous. The embracing of the three floors in the ht of the order was intended presumably to overe the endless repetition of so many similar dows, and as such it is successful. Some exception his treatment may be taken, however, inasmuch as uggests a large hall within, rather than three rate floors. The plan is noteworthy for its several llent architectural shapes—the entrance halls ecially—in which respect the selected design is kedly deficient. In the report accompanying their gn the authors state that "the maximum amount pace in light courts has been attempted, with an



Atkinson and Alexander, Architects.



H. Percy Adams and Charles Holden, Architects.



Gascoyne and Nott, Architects.

NEW BUILDING FOR BOARD OF TRADE, LONDON: PRINCIPAL FLOOR PLANS.

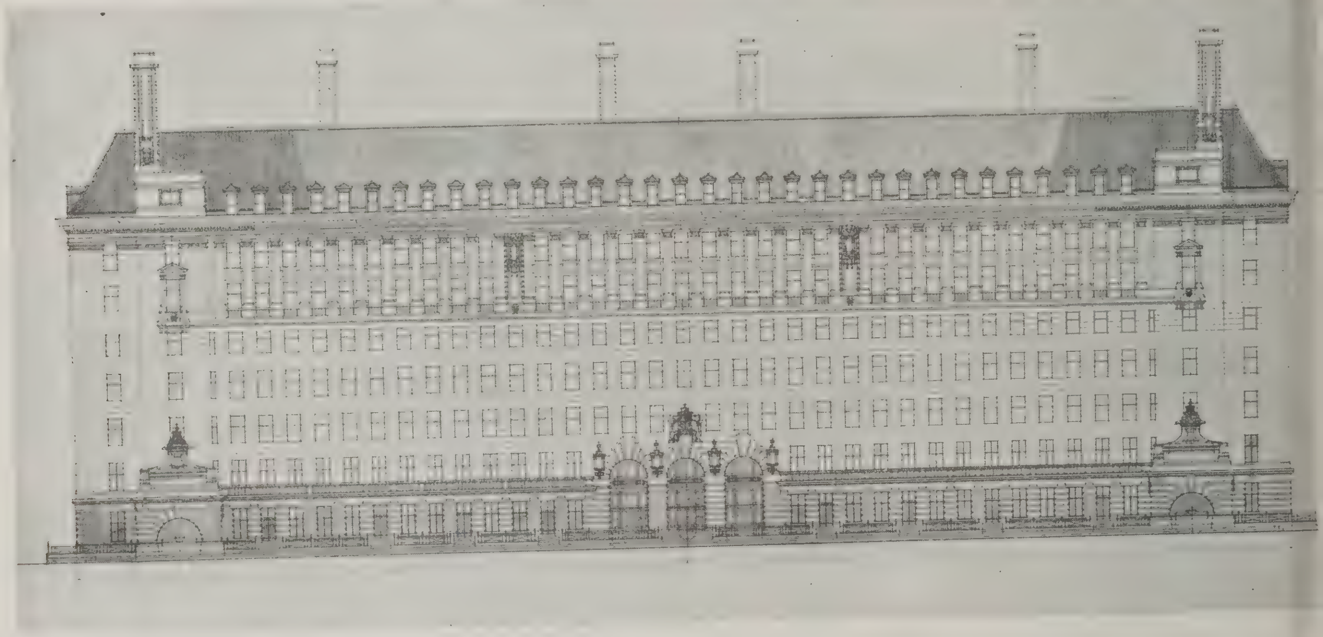
entire absence of areas so-called." But they admit that "the only drawback to such an arrangement is that the corridors do not for their full length receive direct light." This drawback is, we think, a serious one: the double arrangement of rooms on either side of a central corridor being, as we observed last week in our criticism of the selected design, a very undesirable feature. The total cost of the design is put at £566,823.

The plan of Messrs. Adams and Holden is noteworthy also for the good architectural shapes that are embodied in it. There is, indeed, a great deal of merit in the plan. Two main entrances are provided, one from Horse Guards Avenue, the other from the south end of Whitehall Gardens: the latter would be the principal entrance for the first part of the building. The exterior is, we think, not so successful as the plan. It suggests rather a large hotel than a block of Government offices. The cost of the building is estimated £573,148.

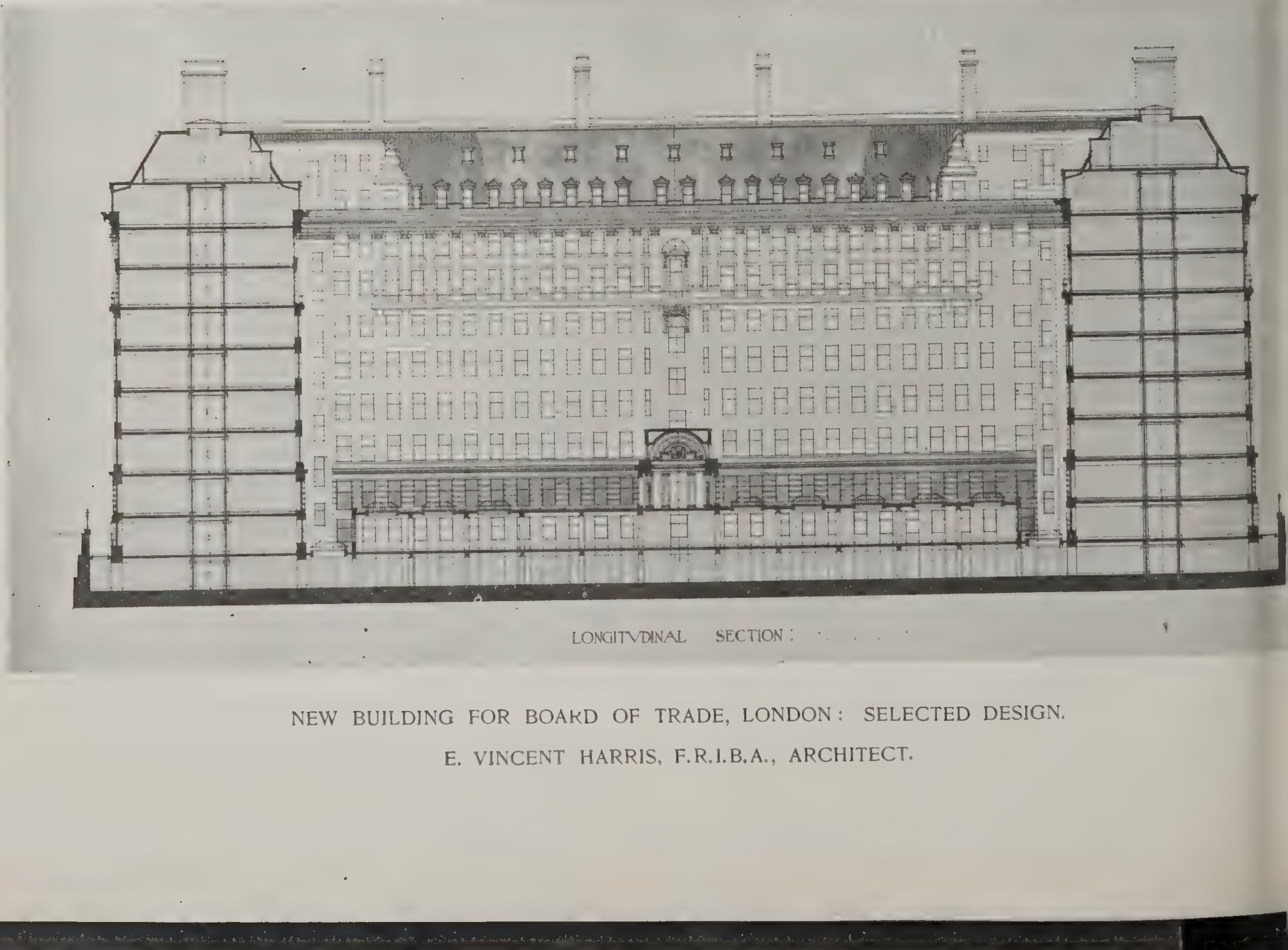
Messrs. Gascoyne and Nott have produced a ve striking façade. The pedimental treatment of t slightly projecting wings is excellent, and the additi of a pediment to each alternate window on the four floor saves the façade from appearing bald, but t double setting back of the two top floors and the r of chimneys above combine to produce a very un-teresting skyline. The plan is carefully worked o but offers nothing that calls for special note. The c of this design is put at £539,222.

Roman Ornament.

This new series, we think, should prove of val more especially in connection with designs for inter and exterior decoration. Very little description of t illustrations is necessary, and in regard to the exam



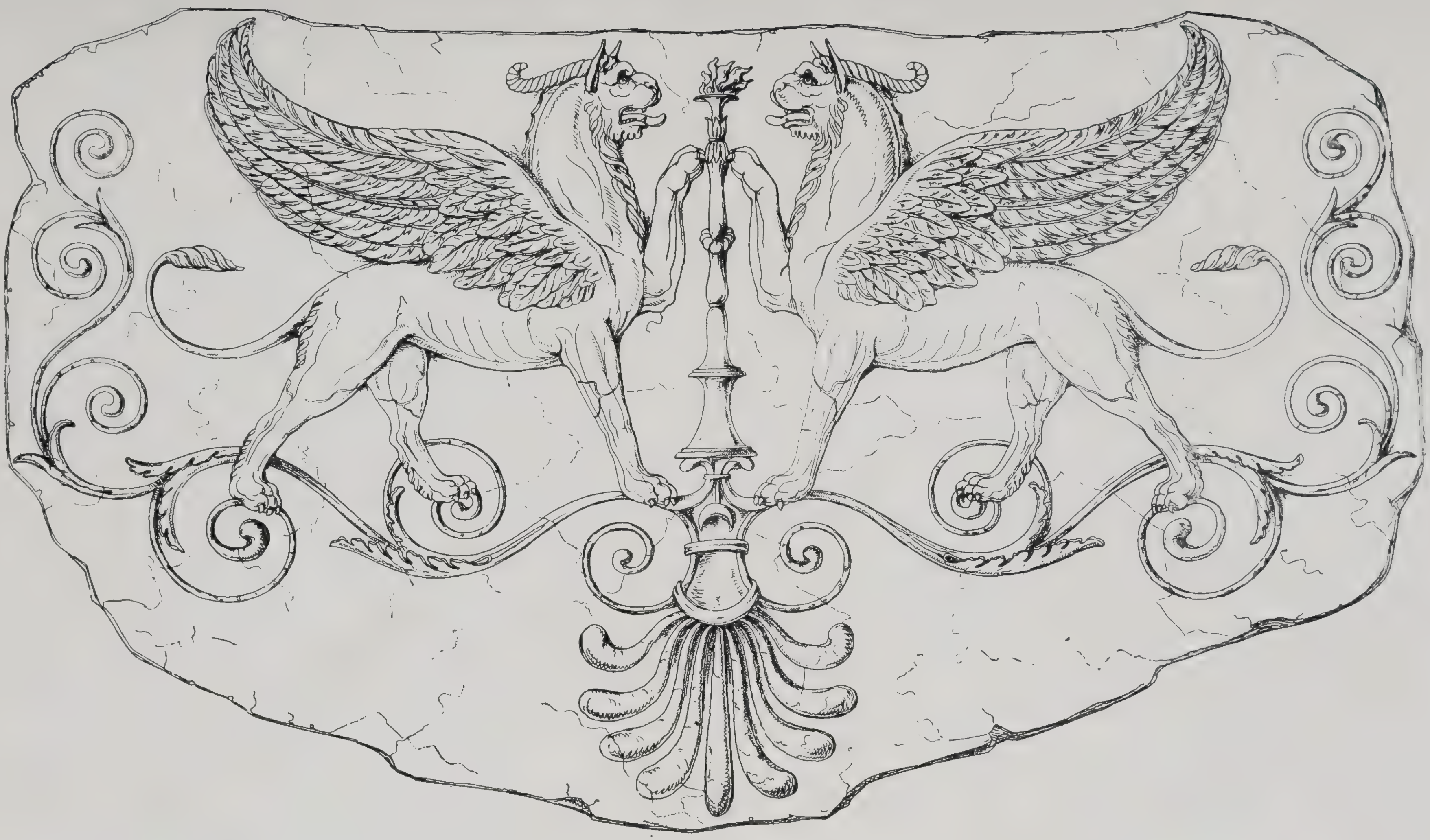
Elevation to Embankment.



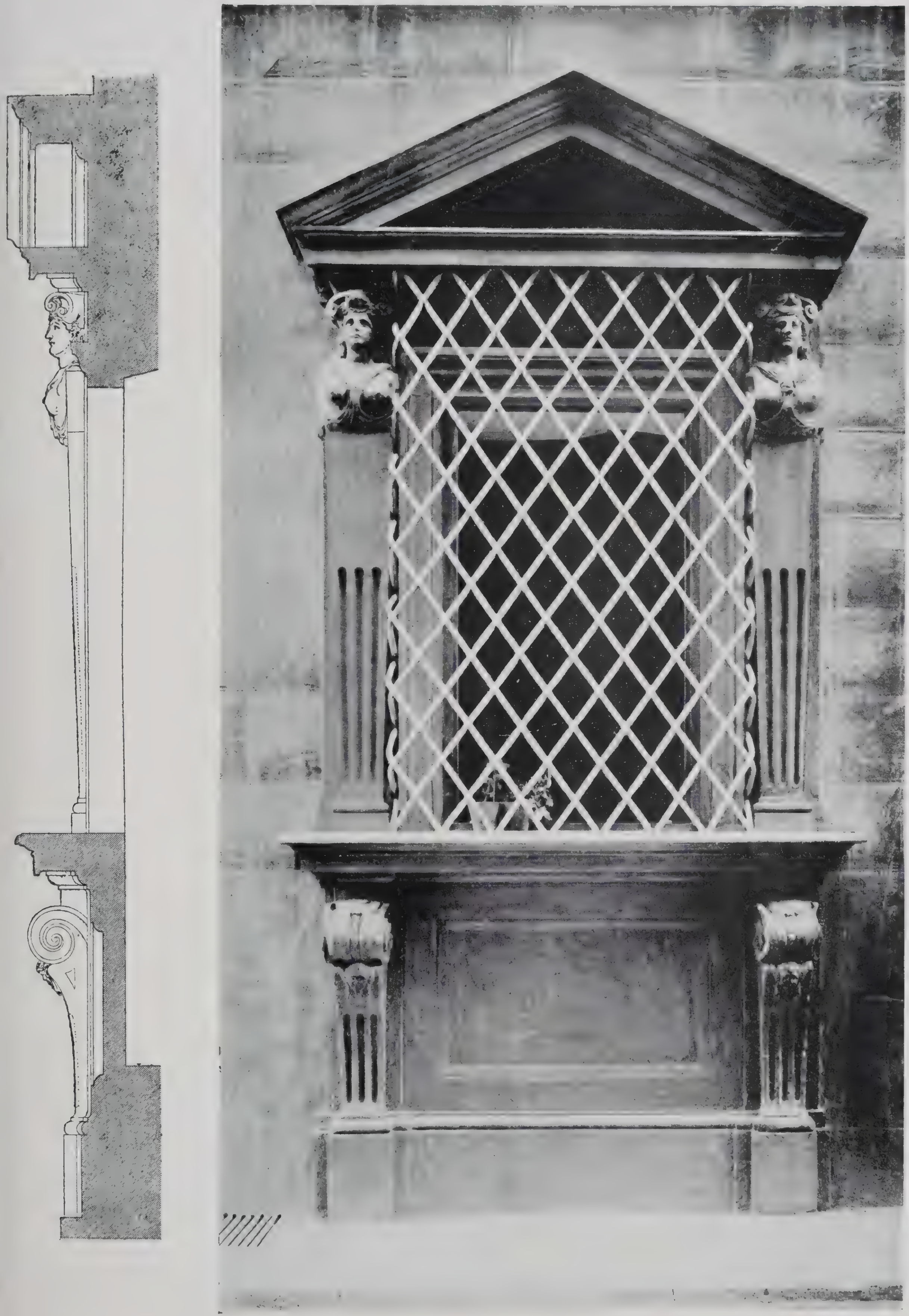
LONGITVDINAL SECTION :

NEW BUILDING FOR BOARD OF TRADE, LONDON: SELECTED DESIGN.

E. VINCENT HARRIS, F.R.I.B.A., ARCHITECT.



DRAWINGS OF ROMAN ORNAMENT. I.—DETAIL FROM THE BREAST-PLATE ON THE STATUE OF AN EMPEROR AT ROME



FLORENTINE PALACES. X.—WINDOW, No. 9, VIA GINORI.

[illegible]

blished this week we need only draw attention to good composition of the two chimæræ and the floral olls, with the reversed palmette below.

A Florentine Window.

The barred ground-floor window is a characteristic ture of Italian palaces, though it cannot be said that grille enhances the design. In the example from Via Ginori it detracts from the delicacy of the ninal features to the pilasters. It is these latter t give the special interest to this window; though of ost equal merit are the consoles supporting the sill.

THE LONDON SOCIETY'S TOWN DEVELOPMENT SCHEME.

S our readers have been already informed, a development plan for Greater London is being prepared under the direction of the London iety, and with the approval of the Board of Trade the Local Government Board. The scheme udes the making of arterial roads and town nning, and the work now being done in preparing a plan will not only lay the foudation of an ortant and valuable scheme to be further eloped in the future, but gives suitable and honour- occupation to a number of professional men by m the effects of the war have been severely felt.

ord Plymouth, on behalf of the London Society, issued an appeal for funds to help on the work, and ong committee of guidance has been constituted as ws: Sir Aston Webb, R.A., Chairman; Mr. nichael Thomas, Mr. Raymond Unwin, and essor Adshead, N.W. Section; Mr. Arthur Crow, Section; Mr. W. R. Davidge, S.E. Section; Mr. id Barclay Niven, S. Section; Mr. H. V. chester, S.W. Section.

ch of the proposed new arterial roads is to be ed in turn, and suggestions for its treatment ared which will be discussed by the Committee of ance in relation to the other sections and in con- on with the question of future open spaces, rning which it is observed, in a footnote to a lation of portions of the report prepared by M. nnay, Prefect of the Seine, with respect to the e development of Paris (" Journal of the London ty," January), that the town-planners of the ter London of the future must not be behind their cessors in the consideration given to the question en spaces, which the Society has always urged be on a comprehensive scale, and not piecemeal present. At the present time the services of four emen have been secured to work upon the roads north-west, south-west, south, and south-eastern ts, and it is hoped that the Committee will shortly a position to appoint two more.

t of the scheme is concerned with town planning he preservation of open spaces. It is hoped to op a system of roads connecting the garden bs and open spaces all round London, and so to ce eventually a circular park system round the polis. The obstacle which the constant increase den suburbs will place in the way of the construc- f the arterial roads is recognised, and an effort is made to consolidate the work of local authorities n development with the road scheme.

of the great benefits of the scheme is that it will ay with many undesirable and congested byways educe the pressure of traffic on the present main

h the completion of the new County Hall it is to open up a new state of things on the south f the river and to construct in the neighbourhood ithwark, a district of undeveloped possibilities, a ghfare at least as useful and prosperous as the l.

CORRESPONDENCE.

Concrete for Military Huts.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Referring to the article with this title in the Journal for February 3, it is, I believe, stated that many of the huts are built on land that is only taken for the duration of the war, when they would have to be removed, and that the materials with which they are built would realise something, if only as firewood, and that, *per contra*, concrete walls would cost a considerable sum to pull down and remove, and the materials realise little or nothing. But thin walls of steel and concrete and thin solid concrete floors with a finished surface of cement and sand would be waterproof, and could be washed out daily with a hose and squeegee, saving a large amount of labour compared with the present practice of scrubbing them daily. Cocoanut matting could be laid on the cement and could be removed daily and shaken or beaten. In this way huts would be rendered hygienic and as comfortable as many rural cottages.

The advance in the price of timber is in greater proportion than that of cement and steel, and should enable huts built in this way to be erected at the same price as the War Office has paid for the many hundreds that have been condemned all over the country. In addition, where built on Government land they would be of a permanent character and with little cost of upkeep, if required.

I am told that offers have been made to erect huts of this description at similar prices to those paid for the condemned ones, and remove them when the war is ended, but as yet the offers have not been accepted.

W. W.

Deadwood and Dry Rot.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Every architect will be interested in the statement made by Mr. E. J. Goodacre at the meeting of the Municipal and County Engineers at Birmingham, and reported in your issue of January 13, page 20.

In the discussion which followed there was considerable interest taken as to the cause of dry rot. It is six years now since the "Morning Post" tried to interest the public of this country against the importation of diseased timber, and for six years I have made a hobby of the study of this evil.

When deadwood is used in a building where ventilation is poor, it develops fungoid growths, which ultimately rot it and transform it into touchwood. The great danger of deadwood lies in the fact that it is exceedingly difficult to detect, so that it is often used by builders in ignorance of its real nature. A builder said to me some time ago that a stack of timber he had just got in was the best he had ever had, because not only was it free from knots, but *there was not a particle of sap in it.* He said it was almost too good to use for joists. It was only my emphatic knowledge of this wood that convinced him that he was using deadwood. Indeed, it is not to be wondered at that many builders are entirely ignorant of this inferior wood. Apart from the question of the reddish hue, there is nothing but the light weight of the wood to distinguish it from good timber.

It cannot even be used for packing-cases for long voyages, because in the close hold of a ship the fungus is spread with startling rapidity. It is only in England that such timber has a large market. For these reasons I assert and maintain strongly that an Act of Parliament should be passed prohibiting the use of diseased or dead timber.

King's Lynn. J. H. KERNER-GREENWOOD.

ENQUIRIES ANSWERED.

Colouring Concrete.

"M. R." (London, W.) writes: "Is there any easily obtainable colouring matter that can be added to Portland cement concrete in the mixing to give the finished work a warmer appearance?"

—Concrete casts can be coloured to give a warmer appearance by the addition of mineral oxides to the cement used. The quantity of oxide added depends upon its strength, some having much more effect than others. From 5 per cent. to 20 per cent. may be required. For a Caen stone colour 4 parts by weight of yellow oxide, ½ part of red oxide, and 36 parts of cement; for dark red, 10 parts of red oxide, to 36 parts of cement; and for buff, 8 parts of yellow oxide, 1 part of red oxide to 36 parts of cement are reasonable proportions. The oxide is expensive, so that if its use can be restricted to the face of the blocks it is better. Red sand and brick-dust is a cheaper means of colouring mass concrete, a proportion of this material being added to the aggregate. G.

Insulation of Ice Store.

XX. writes: "Which is the best and latest method of insulating an ice store? The walls of a store which measures 88 ft. by 38 ft. by 44 ft. high are built partly of solid rubble-work and partly of hollow brick-work, and the roof is covered with slates. If there are divisions, should they and the doors also be insulated? Should there be any ventilation?"

—The best and most modern method of insulating ice stores and cold chambers is to surround them with an air-space containing "still air," and with a protecting jacket of some substance containing innumerable air cells. Slag wool or silicate cotton is the most usual material, but fine charcoal, powdered cork, sawdust, and asbestos are also employed, and even dry sand is moderately efficacious. The method in which the insulation is applied to walls is shown by the accompanying diagram. A ceiling similarly treated should be formed below the external roof, the "uprights" on diagram becoming ceiling joists, the slag wool being put in before the upper boarding is laid, and the space between this and the roof being equivalent to the air-space next brickwork. The slag wool in all cases should be lightly packed in and not tightly pressed. Doors should be double, so as to form a lobby between them as an air-lock, and they should be insulated similarly to the walls. Cargo-battens at about 15 in. centres should be fixed to the walls to prevent ice-blocks adhering and to admit free circulation of air round stored material. The divisions need not necessarily be insulated if entirely internal. Ventilation must not be provided. The floor should have a sound foundation of, say, 6 in. of cement concrete covered with ¾ in. of rock asphalt continued up to damp course. On this should be laid block paving of granulated cork and bitumen pressed into slabs, set in cement in three layers, and finished with asphalt paving, drained to carry off waste and washing water. G.

WHAT IS RESTORATION?

A slight disagreement (into the merits of which we do not feel called upon to enter) between the Society for the Protection of Ancient Buildings and the Ancient Monuments (Churches) Committee has evoked a rather long argument from the society, from which we extract a few items that, apart from the dispute, seem to possess general interest, more especially since they seem to include a sort of declaration of policy on the vexed question of restoration.

It is alleged that architects in the first rank of the profession have in time past done much harm by their treatment of old churches—witness some of the works of Sir Gilbert Scott, R.A., Mr. G. E. Street, R.A., and Mr. J. L. Pearson, R.A. The meaning of this case [the late Mr. Bodley's work at Elvaston Church] is that the fame of an architect is not security against like treatment. . . . The Ancient Monuments Committee states that "as a matter of fact the old church was enlarged and adorned." This work is usually known to the public as restoration, but . . . restoration, as regards buildings, in its true sense means the replacing of fallen or displaced members—stone, timber, iron, or glass—in their original position. To renew is not to restore, and to adorn or enlarge is no more so, but the word is now so loosely used as to hold any of these meanings. . . . The society raises no objection to additions to churches where no other means of obtaining accommodation for the congregation or the clergy can be found, but not otherwise. Again, it considers the features and characteristics of a mediæval church far more valuable than any modern adornments of it, which unfortunately, however good, cannot be inserted or added without disturbing the former qualities. . . .

Even well-known architects make m
takes. An architect generally becon
well known through his modern buildi
and, on account of his reputation gai
in this way, his opinion is accepted, an
nation loses a portion of the historic wo
of its early days.

The society does emphatically object
restoration in the sense of an attempt
reproduce to-day the art of a long-past c
tury. It considers this process fun
mentally wrong. New material sho
not be put in until it becomes structur
necessary, and that, when the time com
the quality of the material inserted sho
not be such as will necessitate the le
possible interference with the structure,
will make the work lasting, and as
detract from the tone and character of
building as little as possible. The soc
has found that tile satisfies these requ
ments in many cases better than ot
materials. It is the principle and not
means which is the important mat
Once that is grasped the means of exe
ing the work satisfactorily are almost
limited.

ATTENDANCE ON SUB-CONTRACTORS.

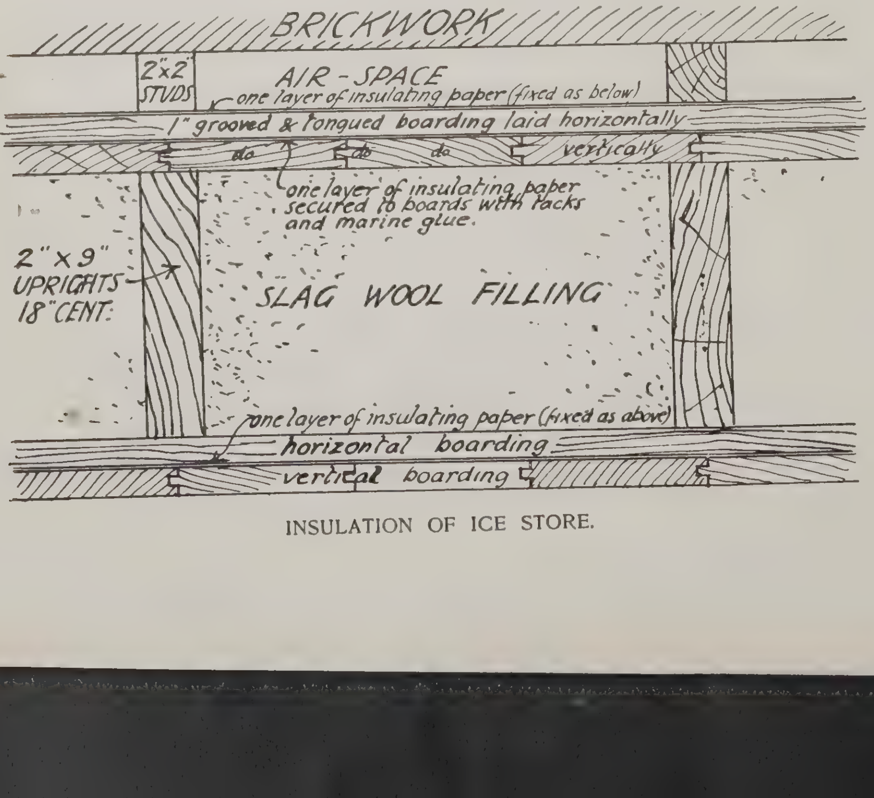
The following memorandum has
issued by the Surveyors' Institution, wh
secretary, in a covering letter to the Cou
of the R.I.B.A., points out that in mod
buildings, the hot-water works, sani
work, and electric wiring are usually
siderable and often very extensive, and
frequently this class of work is del
until the building is in an advanced st
necessitating a good deal of work w
might be avoided were the requirem
known earlier. This is an obst
against accurate estimating, and
Council of the Surveyors' Institution
confident that architects will willingly
port the effort for reform. Followin
the text of the memorandum:—

The Institute of Builders ha
approached the Council of the Institu
with reference to the method of dealin
Bills of Quantities with Attendances
Sub-Contractors, and having reque
that a deputation should be receive
enable them to lay their views upon
matter before the Council, a represent
deputation was received by the Qua
Surveyors' Committee on behalf of
Council, and the subject was fully
cussed.

The Quantity Surveyors' Committe
satisfied that the builders are not wit
some ground for complaint, and that
importance of dealing in adequate d
with "attendances" is not fully rea
by all who practise as quantity surve

They are of opinion that the m
should be dealt with more precisely th
frequently the case in preparing bil
quantities, in order to obviate the fri
which often arises between the parti
a contract owing to a misunderstandi
to the liabilities imposed respectively
the building owner, the general contra
and the sub-contractor. The follo
note and suggestions are therefore re
mended for the consideration of men
of the Institution.

The word "attendance" does not
prise any works of construction (*e.g.*,
trenches, castings, etc.), but it does
prise all cutting away and making good
receiving materials and providing st
space for them, providing water, allo
the use of erected scaffolding and
plant. If so provided in the contra
should also be taken to cover the pay


BRICKWORK
2"x2" STUDS
AIR-SPACE
one layer of insulating paper (fixed as below)
1" grooved & tongued boarding laid horizontally
do do do vertically
one layer of insulating paper secured to boards with tacks and marine glue.
2"x9" UPRIGHTS 18" CENT.
SLAG WOOL FILLING
one layer of insulating paper (fixed as above)
horizontal boarding
vertical boarding

INSULATION OF ICE STORE.

counts as certified by the architect, their inclusion in the general certi-

particular matters dealt with by the ers' Deputation were:

Attendance on heating engineers;

) Attendance on hot-water engineers;

) Attendance upon electricians.

ling with attendance on these or other tradesmen, there should be given count as detailed, clear, and succinct sible, of the work which it is proposed b-contractor shall do, stating precisely services will have to be rendered to

en the sub-contract is of minor im- ce, all the needs of the case will be y leaving the estimator, after inspect- e drawings, to assess the value of the to be done in this connection and set n against the descriptive item.

en the sub-contract is important, the account of the work to be done should en, and, in addition, an indication of tent of the attendance, stating:

. The number of holes for pipes, etc.;

The number of pipe brackets, etc., fixed;

The chases for pipes, etc.;

The number of the points for elec- lighting, electric bells, radiators, ry fittings, etc.

general item to the following effect also be inserted:

n so far as is possible an indication een given of the specific attendance ed, but the contractor is to allow for any further expense entailed in g upon special tradesmen, or for the bance of his work caused by them, or giving them all facilities for the tion of their work."

e should be taken that the nature of tendance which will be afforded them arly set out in the sub-contractors' cts.

s considered inadvisable in ordinary nstances to make money provisions expended in "Day-work."

IETIES AND INSTITUTIONS.

Relics of Roman London.

Thursday last, before the Society of uaries, Mr. F. Lambert, assistant or to the Guildhall Museum, read a on recent Roman discoveries in Lon- Mr. Lambert began by making some nces to the remains of a Roman found in 1880 on the site of Leaden- Market. In 1848, walls 6 ft., 7 ft., 1 ft. thick, extending east and west, unearthed near Half Moon Passage, covered by the avenue of the market to Gracechurch Street. Again in he same walls were struck. In 1880 881 the site had been completely un- ed. The principal wall was 12 ft. thick, running almost due east and about 150 ft. long, and apparently ng underneath the line of Grace- h Street. In 1912 Roman founda- were found on the site of the Mercan- ank of India on the western side of church Street, 7 ft. wide, descending depth of 30 ft. below the pavement. e northern end of the same street ns pointing to the existence of large n public buildings have been dis- ed.

first important excavation on the f the General Post Office was made en 1818 and 1825, when Smirke's ng was erected. In the winter of 1913 ke's building was demolished, and oil excavated to a depth of from 22 ft. to 24 ft. The objects found during the contractor's excavation were carefully collected. Three conclusions were come to—(1) the majority of the objects found dated from the first century A.D; (2) only a very small proportion were later than 150 A.D; (3) the objects found at the south end were of earlier date than those found at the north. One of the most interesting relics of Roman London found here was a gold ring, bearing the initials Q. D. D., and an intaglio seal, engraved with an eagle and hare. Another relic was a Jewish coin, struck in Palestine at the time of the second revolt of the Jews (132-135 A.D). Further discoveries were the front of a mould for making medallions for pottery and the head of a statue of Venus, and a fragment of a shrine made of pipeclay from the south of France, of the first century A.D.

The money for the investigations was supplied by the Corporation and the Goldsmiths' Company. The Office of Works co-operated, and further work will be done under Mr. Lambert's supervision. Interesting remains were also found in Sherborne Lane when the building of the Phœnix Insurance Company was being erected.

Aberdeen's New Joint Railway Station.

At last week's meeting of the Aberdeen Architectural Association, Mr. W. J. Devlin presiding, Mr. James Lowson read a paper on "The Building of the New Station." Mr. Lowson first gave a detailed account of the movement that led to the building of the station. He described the demolition of the old building, and gave an exhaustive account of the new building. There are altogether thirteen platforms, with a total frontage of 2⅛ miles, while the combined surface extends to four acres. The new station, he said, would occupy the third position in the country for the length of its main platform, which is 60 ft. longer than the longest hole on Cruden Bay Golf Course, while for its platform frontage it would occupy the fifth place in the country. The number of plans that had been drawn up for the building was legion, and it would be impossible to re-arrange the various rooms so that they would be different from those that had already appeared on paper. The present plans, however, were a great improvement on the original proposal. Referring to the building of the station of freestone, Mr. Lowson said that question had given rise to a controversy. Freestone had been used so as to facilitate the construction of the building and also to lighten the cost, but after everything had been taken into account he did not know where a saving had been effected, except economy in the time taken for the work of erecting. Mr. Lowson submitted a large number of plans and lantern slides showing the progress of the work. At the close he was awarded a vote of thanks for his very interesting paper.

Points in House-Planning.

In compliance with a request made by some of the students attending the course at the Birmingham University, Mr. Barry Parker interrupted his course of lectures on Town-Planning and Civic Design to give two lectures on house-planning.

The lecturer began by giving a short summary of the evolution of the English house, beginning with the earliest forms of human habitation of which we have any record. He then gave a series of typical modern house plans, beginning with those costing, say, round about £2,000, and going down a scale of diminishing cost until he came to the quite small cottage, showing how, in every type of house, the actual conditions laid down by the site, by considerations of aspect and prospect, and the specific requirements of the future occupants of the house, must be the controlling factors in its planning. The lecturer also drew attention to the way the hall was again coming to assume a more important place in the house plan, but said that modern architects thought it could be made to do this merely by its being increased in size, whereas it could only usefully serve if it were so arranged that the traffic through it from room to room or from room to stairs, or from these to the front door, was rigidly confined to one corner of this apartment, leaving the rest free from traffic and cold currents of air, and therefore comfortable to sit in.

Coming down to cottages of the smallest type, such as are built in blocks, he gave the essential elements of the problem to be solved, as provision of shelter, comfort, and privacy. He advised all who proposed to study the problems which the designing of such dwellings presented to do so with an open mind, prepared to find their own solution to them, and having done so, to study the solutions of them which others had arrived at, but not to begin by taking the solutions arrived at by others and considering what modifications of them might be suggested. The day, he said, surely could not be far distant when local authorities, in addition to requiring for each cottage a minimum air space, would require for each living room at any rate a reasonable minimum amount of sunshine, and when, at least, by-laws would prohibit the building of cottages with their living-rooms facing north. He strongly deprecated the projecting back premises so common in cottage property, and showed how this feature could be completely eliminated, even on sites on which the architect was prevented from increasing the width of frontage given to each cottage.

Architectural Association of Ireland.

An ordinary meeting was held on Tuesday, February 2, at the rooms, 15, South Frederick Street, Dublin. The Vice-President, Mr. Frederick Hayes, F.R.I.A.I., occupied the chair, and there was a large attendance of members. Owing to the regrettable indisposition of Mr. F. C. Eden, M.A., who was thus prevented from completing his journey to Ireland, his paper entitled "In the Footsteps of Samuel Butler" was read by the President, Mr. H. Allberry, A.R.I.B.A.

The lecture dealt with the interesting series of chapels to be found at Varallo, Orta, Varese, and other towns of Northern Italy, where groups of these buildings were erected as a setting for scenic representations of religious subjects. It and the splendid series of explanatory lantern illustrations were followed with close attention.

Mr. R. Caulfeild Orpen, R.H.A., President of the Royal Institute of the Architects of Ireland in proposing a vote of thanks to Mr. Eden, said that, although their President had done well, having regard to the short time the paper had been in his hands, they must all realise that they had missed much by the absence of the writer. It was clear he was imbued with the charm of the district of which he wrote, and his personality would have been impressed on his remarks. Professor W. A. Scott, A.R.I.B.A., seconded the vote of thanks, which was passed with acclamation.

The Committee proposed two resolutions, one dealing with the remission of subscriptions from members serving with His Majesty's forces, the other with a number of clauses in connection with the proposed entente between the English and Irish Architectural Associations.

Following are the resolutions brought forward by the Committee :—

(1) That members of the A.A.I. serving with His Majesty's Forces shall not be required to pay their subscriptions for the current session. (2) That the following working arrangements between the Architectural Association of Ireland and the London Architectural Association, for the mutual benefit of the members of the Societies, be approved :—(1) The province of the Irish A.A. to be all Ireland. (2) All members of either body, resident within the province of the other, shall, if they wish, become hon. members of the local body until the close of the session then current. (3) All members of the Irish A.A. resident in the province of the London A.A. who join the latter, may remain country members of the former at the reduced subscription of 5s. per annum. Similarly, all members of the London A.A. resident in Ireland, who join the Irish A.A., may remain country members of the London A.A. at the reduced subscription of 5s. per annum. (4) No entrance fee to be charged to a member of one body joining the other. (5) Any defaulting member of either body shall cease to be a country member of the other body. (6) The A.A. slides collection to be available for the use of the Irish A.A. on the terms granted to A.A. members, we to reciprocate with any slides we may have. (7) The registers of both bodies to be mutually available. (8) that the foregoing proposals, if approved, operate for one year commencing from June 1, 1915 to June 1, 1916.

A vote on the above resolutions will be taken at a special general meeting, to be held after the ordinary meeting, on March 2, 1915.

SPECIAL LEGAL REPORTS.

Scope of Employment of a Foreman Joiner.

Jibb v. Chadwick and Co.

January 29. Court of Appeal. Before the Master of the Rolls and Lords Justices Swinfen Eady and Phillimore.

This was an appeal by Messrs Chadwick and Co., builders, of Rotherham, near Sheffield, from an award of the judge of the Rotherham County Court, in favour of the respondent Jibb, a foreman joiner in their employ, who met with a fatal accident in attempting to enter a train in motion.

It appeared that the appellants had a great deal of work at Sheffield, on the premises of the Midland Railway Co., and Jibb had a season ticket between Rotherham and Sheffield. He was expected to return to the office at Rotherham before 6 o'clock to report what he had done in the course of the day. A train left Sheffield at 5.26, which would bring him to the office at Rotherham before six. On the evening of the accident he arrived at the station late and the train was actually in motion as he entered the station. He attempted to get into a carriage, but he fell between the carriage and the platform and was dragged along some distance, and so injured that he died.

The County Court judge held that the accident arose out of and in the course of Jibb's employment, and from this Messrs. Chadwick and Co., appealed.

Mr. Ellison argued the case for the appellants, and Mr. Scott Fox, K.C., and Mr. Waddy for the respondent.

The Master of the Rolls, in finding judgment, said he was not satisfied that Jibb's employment did expose him more to railway accidents than ordinary people. He exposed himself to an additional risk by doing an unauthorised and illegal act. To say that the act was done in his master's interest and not from his own pleasure was not sufficient. There was not a particle of evidence to show what he was doing between 5 o'clock, when the joiners left work, and 5.26, when the train started. To perform his duty towards his masters he ought to have started earlier to reach the station by 5.26. His lordship thought he was not employed to do this illegal act, either expressly or by implication, as incidental to his employment. The risk involved in attempting to get into a train in motion was not a risk reasonably " incident to " or " arising out of " his employment.

Lords Justices Swinfen Eady and Phillimore concurred, and the appeal was allowed with costs.

THE LATE MR. SETON MORRIS AND ARCHITECTURE IN INDIA.

The death of Mr. Henry Seton Morris, F.R.I.B.A., Consulting Architect to the Government of Burma, removes from the architectural branch of the Public Works Department of India an officer who was doing excellent work in it. It may seem curious, says a writer in the " Indiaman," but it is only in comparatively recent years that architects have been employed in the service of the Indian Government. In the early days of the British occupation of the country the work, which forms the special duty of the Public Works Department, was in the hands of the Madras, Bombay, and Bengal engineers of the company's service. The military engineers in course of time were supplemented, and later, again, almost entirely replaced, by trained civil engineers; but the fact that engineers are not by virtue of their education architects would appear to have been overlooked. It was not until the beginning of the current century that the far-sightedness of Lord Curzon discovered how pronounced was the need of qualified architects in the country, a discovery which led to the appointment of a Consulting Architect to the Government of India, and ultimately to the formation of an architectural service. India has now no more new and important public buildings designed by Royal or Civil Engineers, and the country is likely to be saved the infliction of fresh eye-sores on the landscape. The architectural staff is still very inadequate considering the enormous number of Government buildings to be designed and constructed. There are still only eighteen architects on the establishment of the whole of India and Burma; but it is satisfactory to know that all the major provinces have at least one consulting architect—some more—and that the architects are exercising a far wider influence than they have ever done in past years. Mr. H. Seton Morris was the first Consulting Architect to the Government of Burma, and arrived at Rangoon to take up this appointment in April, 1911. He was then over forty years of age, and possessed considerable experience. After being articled for five years to Mr. Willcox, of Bath, he became assistant to Mr. C. J. Phipps, F.R.I.B.A., London. In 1892, as a Royal Academy student, he won the £25 premium for design. In 1898 he was associated with Mr. H. Baillie Scott, architect, in Douglas, Isle of Man. From 1899 to 1902, he was employed as an architectural draughtsman at the War Office, and then started private prac Johannesburg, South Africa. In 1 was made a member of the Transva stitute of Architects, and from 1904 t was on the Council of this Institute was elected an Associate of the Roy stitute of British Architects in 190 a Fellow in 1914. South Africa wou pear to be an excellent training grou India. Mr. Begg, the present Cons Architect to the Government of Indi Mr. Baker, now engaged on the d for the new capital at Delhi, are known there. At any rate, Mr. Morris fell into his stride in Burma quickly than is usual with architec pointed to the Indian establishment Secretary of State. Mr. Seton Morr no failures in his record. The which bear his name, the Court Ho Insein, the extensions to the Rangoo lege, the Physical and Chemical L tories of the Hospital, the Me Church at Maymyo, the house f General Officer Commanding at Ra are all buildings of which no ar would have any reason to be ashame it is believed that he was engaged plans for a large lunatic asylum, to a modate one thousand patients, at K at the time of his death. The Secret State has, on the whole, been ver tunate in the architects selected for in India, and among them Mr. Morris would assuredly have ear great reputation.

Mr. W. J. Cutbill.

We much regret to hear of the dea January 27, of Mr. W. J. Cutbill, Cha of Claridge's Patent Asphalte Com Ltd.

COMING EVENTS.

Wednesday, February 17.

Royal Academy—Mr. E. S. Pri " Architecture in Flanders and bant, 1400-1800," at 4 p.m.

Carpenters' Company—Mr. Charle ken (Keeper of the Tate Galle " Animal Forms in Art," Carp Hall, London Wall, E.C., at 7.4

Thursday, February 18.

London University—M. Camille Po on "The Decorative Arts of Belg University College, Gower W.C., at 5.30 p.m.

Friday, February 19.

Birmingham Architectural Associa Paper by Mr. Edwin F. Reynold

Monday, February 22.

Royal Academy—Mr. E. S. Prior on Arts and Crafts of the Flemis naissance," at 4 p.m.

Architectural Association—Mr. A Richardson on " Architecture c Present and the Future," at 8 p

Wednesday, February 24.

Royal Academy—Mr. E. S. Prior on Two Eras of Flemish Sculptur Painting," at 4 p.m.

Carpenters' Company—Mr. Francis M.A., on " A Comparative Vi French and English Cathed Carpenters' Hall, London Wall, at 7.45 p.m.

Friday, February 26.

Glasgow Technical College Archite Craftsmen's Society—Discussion " Cheap Cottages."

Leicester and Leicestershire Societ Architects—Rev. E. I. Fripp on Place of Iron in Architecture."

)JECTED NEW WORKS.

School, Malvern.

e Worcestershire County Council have ed to invite tenders for the building of v school at Malvern.

School, Lincoln.

ıcoln Education Committee have de- to build a new school at Monk's Road estimated cost of £4,000.

Baths, Chorley, Lancs.

e Chorley Town Council have ap- d plans by Messrs. Woodhouse and ard for public baths.

Fire Station, Loughborough.

e Loughborough Corporation propose rrow £5,800 for building a fire-engine n and depot in The Rushes. An en- has been held.

Housing Scheme, Kingstown.

inquiry has been held into the appli- ı by the Kingstown (Ireland) Urban cil for power to borrow £54,867 for ection of artisans' dwellings.

Hospital, Finchley.

e Finchley Urban District Council decided to build a new hospital for oint districts of Finchley and Hendon cost of £50,000. Competitive designs be invited.

Municipal Offices, Stepney.

pney Borough Council have approved ort from the Special (Office Accom- tion) Committee regarding the con- s of a competition for new municipal s.

tisans' Dwellings, Wednesbury.

dnesbury Town Council have ap- d plans for twenty-four artisans' ngs which are to be erected under the ipal housing scheme recently adopted e Council.

Extension, Wandsworth, S.W.

ocal Government Board inquiry has held into the application of the sworth Borough Council for sanction row £1,200 for the purpose of extend- e Tate Library at Streatham.

Municipal Buildings, Gourock.

rock Town Council have approved by Mr. Alex. N. Paterson, M.A., .A., for the erection of new munici- ildings on the Corporation property ore Street, at an estimated cost of en £7,000 and £8,000. The County il have also decide to build a police and county premises on the site ing that of the Gourock Corporation.

vansea Municipal Development.

or Norton, R.E., on behalf of the Government Board, has concluded ansea the hearing of the application Corporation for sanction to borrow 94 for the purposes of a big drain- heme that has been designed with a of supplying the requirements not f the borough, but of the six sur- ng parishes.

Housing, Manchester.

Temple Estate municipal scheme, ıam Hill, for building 120 dwellings, ceived the approval of the Local nment Board, who have also oned the provision of forty dwellings butt Street, Rochdale Road. The ry Committee of the Corporation has ted the City Architect to proceed he work as soon as possible.

1,000 *Houses, Woolwich.*

Government have purchased ninety of land between Woolwich and Eltham, on the line of route of the electric trams, and the estate is to be laid out, as a garden city for Arsenal workmen. The plans provide for blocks of four and six houses, which will be erected in sites 100 ft. deep, leaving ample garden space. About 1,000 are to be built.

100 *Houses, Finchley.*

The Finchley Urban District Council have decided to proceed with the erection of 100 houses at Friern Barnet, the first portion of 300 for working men, and intend to lay it out on town-planning lines. The scheme for the buildings was based on a loan at 3½ per cent., but owing to the war the Council are not able to borrow at less than 4 per cent.

In order not to raise the rents of 8s. 6d. and 7s. 6d. it has been decided to omit the baths, but provision has been made for these to be added at any time in the future when finances permit.

NEWS ITEMS.

Change of Address.

Mr. Heaton Comyn has moved his offices from 16, Finsbury Circus, E.C., to 28, Austin Friars, E.C. Telephone No. London Wall 2200.

New Royal Academicians.

At a general assembly of Academicians and Associates held last week Mr. John Alfred Arnesby Brown, A.R.A., and Mr. Joseph Farquharson, A.R.A., were elected Royal Academicians.

Supplies of Glass.

At a time when War conditions have caused a shortage of glass, with consequent high prices, it is interesting to note that Mr. C. Jennings and Co., timber merchants and general woodworkers, of 981, Pennywell Road, Bristol, have received a consignment of 1,200 cases, which they are offering at low rates. Detailed particulars of the stock will be found on page vii. of our issue for January 27.

Boswell's House.

With regret we record that, in spite of all protests, "Boswell's House," Nos. 55 and 56, Great Queen Street, the property of the United Grand Lodge of Freemasons, has been demolished. Nothing remains to be hoped for but the re-edification of the façade elsewhere, and it seems probable that even this poor consolation will be denied us, as the London County Council, to whom the Freemasons offered to consign the relics and to contribute towards the expense of re-erection, seems to be in no mood to accept the offer; nor can we greatly blame them, as such work is seldom worth while.

Bombay Electricity Scheme.

The inauguration on February 8, by the Governor of Bombay, of the Tata hydro-electric scheme, which ultimately will provide Bombay with electric energy equal to 130,000 horse-power, or five times the amount hitherto derived from water throughout India, is regarded as of immense industrial significance. The scheme represents the effort to utilise the rainfall of the Western Ghats for the development of cheap electrical energy for Bombay cotton mills. The storage of water in three artificial lakes in the mountains has been rendered possible by the construction of vast dams, the largest of which is longer and higher than that at Assuan. To concentrate the contents of the three lakes necessitated an artificial channel five miles long, adequate to carry a stream with a flow equal to that of the Thames. From the concentration point the water drops 1,734 ft. in immensely strong pipes to turbines, which work the generators. The current is conveyed forty-five miles by cable to Bombay. One out of the three dams is now finished, and four generators are installed. By July the mills will be in receipt of 40,000 horse-power.

Railway Ticket Advertising.

The District Railway, under its present vigorous direction, has set a new standard in posters and other advertising features. The services of artists of distinction have been secured for this purpose, and posters like those of Mr. Frank Brangwyn arrest the attention by reason of their artistic quality. A further advance in a new field is now announced, Mr. John Hassall having been commissioned to prepare a series of designs for embellishing the backs of the Metropolitan Railway tickets, and at the same time accommodating approved advertisements; full particulars in regard to which latter can be obtained from Messrs. S. Davis and Co., 30 and 31, St. Swithin's Lane, E.C.

Too Many Statues.

A curious will case came before the Second Division of the Court of Session, at Edinburgh, last week. Miss Catherine McCaig, of Oban, who died in 1913, left directions to her trustees to erect within the McCaig Tower, Oban, 11 bronze statues of her father, mother, brothers, and sisters, including one of her brother Peter, who died in infancy. Each statue was to cost not less than £1,000. Directions were given also by the testator for certain work to be executed in the tower, which was built at a cost of £5,000 by her brother. The value of the estate was about £30,000, and certain beneficiaries, whose annuities were to be postponed until the statues were erected, now challenged the validity of purpose of the will. The Court held that the directions in question were wholly void, having neither reason nor public sentiment in their favour, and involving sheer waste of money.

The London County and Westminster Bank.

That the position of the London County and Westminster Bank in this present time of War is excellent in every respect was made plain at the recent annual general meeting by Mr. Walter Leaf (deputy-chairman in place of Viscount Goschen, who is serving with the Forces). Their policy throughout, he said, had been to give the most liberal consideration to the requirements of their clients and the legitimate demands of commerce. They made no use of the Moratorium against their depositors, and their current accounts had been conducted on regular lines, and as a result they had been rewarded with the unshaken confidence of the public. With regard to gold reserves Mr. Leaf said their policy had been not to hoard gold on a large scale, but to fix on a sum which they considered needful for their internal requirements, a sum which would make them absolutely safe and enable them to meet all probable calls. Even at the very height of the crisis, whenever they were asked for gold, they did not insist on paying in bank notes, but always had the gold ready. When they had fixed on this sum, they paid over all that they held beyond it—a very large amount—to the Bank of England. In doing this they fulfilled what they considered a public duty, and they felt sure that the shareholders and the public at large would give them credit for it.

TRADE AND CRAFT.

A New Process of Glass Manufacture.

An immediate consequence of the war was an inconvenient cessation of the supply of window glass for which we had been dependent upon foreign countries. Seeing that the shortage of ordinary sheet window glass must soon become quite serious, Messrs. Chance Brothers and Co., Ltd., of the Glass Works, near Birmingham, conducted experiments with the object of producing a rolled glass which, for many important purposes, could be used as an effective substitute for sheet-glass. They have succeeded in manufacturing a new glass, to be known as "rolled sheet-glass," for which they claim that it is the most transparent rolled glass hitherto produced.

As compared with ordinary 21 oz. sheet-glass, the new "rolled sheet-glass" presents the following points: It is slightly thicker and stronger, is considerably cheaper, is more colourless, and therefore transmits much more light than the foreign glass; it can be obtained and glazed in much larger sizes, and is considered to be equal to sheet-glass for windows, conservatories, garden frames, and horticultural work generally. Rolled sheet-glass is made in sheets about 90 in. by 36 in. or 80 in. by 42 in.

Messrs. Chance Brothers and Co., Ltd., are an old-established firm, and have from time to time introduced important improvements in the manufacture of glass. At the Great Exhibition of 1851 they were the chief exhibitors in this department, and Mr. George Shaw, then Professor of Chemistry in Queen's College, Birmingham, said in his lecture "On the Manufacture of Glass"—one of a series written by various eminent men of the day and collected into two volumes, which were published by authority:—"Among the various contributors in this department of the exhibition, the Messrs. Chance claim first notice, both for the extent and general excellence of their productions," and he notes that their glass "exhibited a high degree of perfection," and that the specimens "by these gentlemen are an extraordinary illustration of the precision which long habit gives in treating so difficult a material as glass." From this record it is the less surprising that they should be so early in the field with an improvement that may very possibly have far-reaching consequences on the British glass-manufacturing industry of the kingdom.

New Patent Locks.

Experience, often very dearly bought, has shown hotel proprietors and managers that with ordinary locks it is possible to alter guests' keys into skeleton or pass-keys by means of a very simple operation with a file. Messrs. Joseph Kaye and Sons, Ltd., 93, High Holborn, London, W.C., have perfected a system that provides complete security against this contingency. Their new patent skeleton-key-proof locks for bedrooms and private rooms in hotels and similar institutions are so constructed that no skeleton-key or illicit pass-key will open them, each lock being, by virtue of its differing levers, invested with an individuality of its own, rendering it proof against skeleton-keys. Filing the keys of these locks simply renders the keys useless. The master-keys for these locks are larger than the guests' keys, and are entirely different from the usual type of master-key. In the event of a guest's key being lost, or getting into doubtful hands, the lock may be readily altered to take a different key; but while the original key becomes inoperative, the master-key remains effectual. On the other hand, in the event of a different master-key becoming desirable, this can be provided without affecting in any way the ordinary working of the guests' keys. Under this system a very large number of locks can be made, each differing from all the rest in the arrangement of the levers, but all opening to one and the same master-key. This extremely useful lock is made with gun-metal fittings "for long life."

Messrs. Joseph Kaye and Sons, Ltd., are also the inventors and patentees of a press-button drawer lock that can be securely locked without the aid of a key, which is only required for unlocking. All that is necessary in order to lock the drawer of cabinet, desk, or cupboard is to press a button. In other words, the means of locking is integral and irremovable—an arrangement that offers many obvious advantages—as, for example, the assurance it gives a responsible chief that, supposing he may have taken away the keys, any drawer which he may have accidentally left unlocked will, upon standing instructions, be locked by someone left in charge.

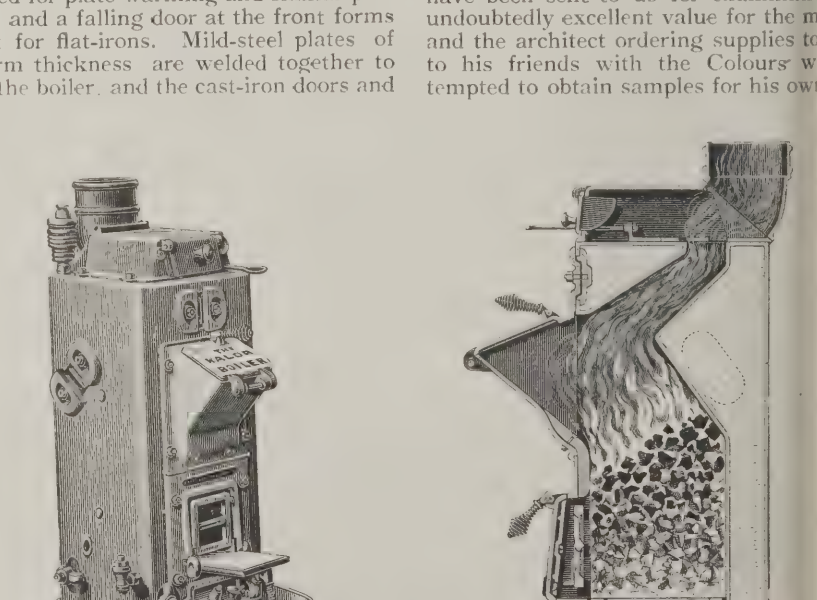
Messrs. Kaye mention that among important buildings recently fitted with their mortice locks and furniture on their set-screwless principle are: The Fleetway House, London, E.C.: the City of Leeds Training College, Leeds; the Anglo-South American Bank, London, E.C.; the London and Lancashire Insurance Co.; and the new Waterloo Station of the London and South-Western Railway. These instances are additional to about thirty banks, including Messrs. Coutts's, Lloyds, London City and Midland, and many others.

The "Kalor" Coke-fired Boiler for Domestic Supply.

This boiler, which is of rectangular form, stands on a neat base-plate, and is intended to be placed in a kitchen as an adjunct to the gas cooker, enabling the user to dispense with a coal-fired range. By a convenient arrangement, the top is adapted for plate-warming and similar purposes, and a falling door at the front forms a rest for flat-irons. Mild-steel plates of uniform thickness are welded together to form the boiler, and the cast-iron doors and frames are exceptionally strong and fitted. Although broken gas-coke i fuel for which the boiler is designe fire, when bright, will act as a very venient domestic refuse-destructor. fire is regulated by means of a slide da and by inlet of air under the grate an the flue: the grate being of a simple ing pattern, its action reducing the fo tion of clinker and keeping the fire b Every boiler holds sufficient fuel to all night, and the heating surfaces a disposed as to secure the maximu efficiency and economy. Large " holes" and covers, and exceptional of the waterways, make thorough ing of the interior a very simple opera Four sizes are listed: the base-casti No. 1 occupying a floor-space 19 in. by 29 in. deep, and heating to 130 de 26 gals. per hour, or to 150 deg. F. 21 per hour; No. 5, having its base-ca 21 in. by 37 in., and supplying 100 ga 80 gals. per hour at the respective tem tures named; while the interm numbers represent intermediate size capacities. The manufacturers are M R. Jenkins and Co., of Rotherham.

Waterproof Wallets, etc.

Friends of architects serving wit colours will be glad to know that shilling a most useful adjunct to a sol kit will be supplied, post free in the U Kingdom, by Messrs. Whitehead, M and Co., Ltd., printers and static 9 and 10, Fenchurch Street, E.C., Caxton House, Westminster. A water khaki-coloured letter-wallet (size, folded for pocket, $6\frac{1}{2}$ in. by $4\frac{1}{2}$ in. by containing writing pad of fifty sl twenty opaque envelopes, an ind pencil, calendar for 1915 and 1916, "French-made-easy" phrases, and a card for acknowledgment, also a w proof field service shaving pad of sheets, size $5\frac{3}{4}$ in. by $4\frac{1}{2}$ in. by $\frac{1}{2}$ in. articles fit the tunic pockets, and tog weigh only 8 oz. The wallet is separately for 6d., and the shaving pa The same firm have also issued water wallets intended for use of officers a (post free 1s. 2d.) and 1s. 6d. (pos 1s. 8d.). This outfit, of which speci have been sent to us for examinatio undoubtedly excellent value for the m and the architect ordering supplies to to his friends with the Colours wi tempted to obtain samples for his ow



ELEVATION AND SECTION OF "KALOR" DOMESTIC HOT-WATER BOILER.

HE REBUILDING OF BELGIUM.

hursday last a conference on the above subject (organised International Garden Cities and Town Planning Asso- was held at the Gulidhall, presided over by M. Helle- he Belgian Minister of Agriculture and Public Works. ord Mayor, who was accompanied by the Sheriffs, d a civic welcome, and Mr. Herbert Samuel, President Local Government Board, conveyed to the meeting the shes of His Majesty's Government.

amuel, who, in common with other speakers, addressed rers in French, said that Belgium had been the victim gy of destruction unparalleled in the history of hundreds s. Beautiful mediæval buildings which had passed ed through the ravages of centuries had now fallen, and ndeed, could not be replaced—their vacant sites remained nument of the shame of Germany. But from the ashes y of her towns they might hope to see rise a new and lgium, and her people were already turning from their and from their righteous anger to look to the future and period of reconstruction. Among the refugees, nearly in number, whom we were proud to have among us, ere about 200 architects and surveyors. The happy idea urred to some of their sympathisers in this country to gether these professional men and to place at their dis- ur experience in the development of towns on modern The proposal was welcomed by the Belgian authorities, s conference was the result. He was glad that it had port of M. Helleputte. They were also fortunate in the presence of representatives of other countries. Those d suggested the conference were far from supposing that s which were good for England were necessarily good gium. The towns of different countries had their dis- ing characteristics, and one would be sorry to see them in any kind of uniformity, however attractive the model. rtain principles, if well considered and well founded, e of universal application. In the middle of the last there arose a spirit of revolt against the results of the unchecked rule of the principle of *laisser faire* which n dominant in the previous period. The nation had s it still had, an intense passion for personal liberty, but same time it was found that the complete absence of might bring disaster. At first it was not the State, but enterprise that realised the evils that resulted from such of things, and sought to remedy them. Certain em- of labour built model towns for their own workpeople; pirited men bought up tracts of land and built on them n city and a number of garden suburbs adjoining some reat towns. In the land and houses of the garden cities den suburbs no less than three and a half millions was now invested. The existence of these new towns urbs was an important object-lesson, and at last, in arliament passed the Housing and Town Planning Act, erlying principle of which was to establish public control e development of cities, but a public control combined nsideration for the interests of landowners and builders. its operation a progressive landowner, anxious to develop te on the best lines, no longer found that his scheme ilt by the careless methods of a less intelligent neigh-

ulpin submitted a paper on the principles of the garden vement and their application to Belgium. Only by ation, he said, could the vast work of reconstruction ium be carried out in a manner worthy of her history ditions. In the old days, when the beautiful cities of s grew into being, men strove together in the arts of nd vied to produce buildings individually pleasing to the l collectively forming a picture which had ever since source of attraction, but in these days, and especially s they were looking forward to when rebuilding would it was terrible to think of what would be the effect if ner of each site erected his own house according to his as, without relation either to its neighbours or to the n which it was placed. We in England had many es of what that had produced, but we were beginning have examples of what co-operation could secure.

aluwaers pointed out that the circumstances in Belgium t the same as in this country. In particular, land was ch more sub-divided, and this fact presented very great ies in the way of town-planning projects. He was strongly l to the erection of barrack-like tenement houses, which d from the point of view of both hygiene and morals. eless, he recognised that urgent measures would have to n to house the poorer classes, and, with this object in easures of a temporary character must necessarily be

est of the discussion was on the principles on which the cities and suburbs of England, now so well known, have tablished.

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PUBLISHER'S ANNOUNCEMENT.

THE question of the cost of Advertising is governed entirely by the circulation of a publication. The prices for small Advertisements enumerated below are framed upon the lowest possible basis in order to allow the use of the columns of the Journal for "Wants," &c., at a figure well within the reach of everyone.

Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

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4 lines (about 28 words) 1s. 6d.; 3 insertions, 3s.

ADVERTISER (32) seeks employment in building trade in any capacity of trust; carpenter by trade; 10 years' experience as assistant clerk of works, with superintendence and management of workmen of all trades; advanced student (I.C.S.) in reinforced concrete; testimonials from London architects as to character and ability; abstainer; moderate salary for start.—J. T., 32, Bateman Road, South Chingford, Essex. 9156

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pointed for the delivery of the tende

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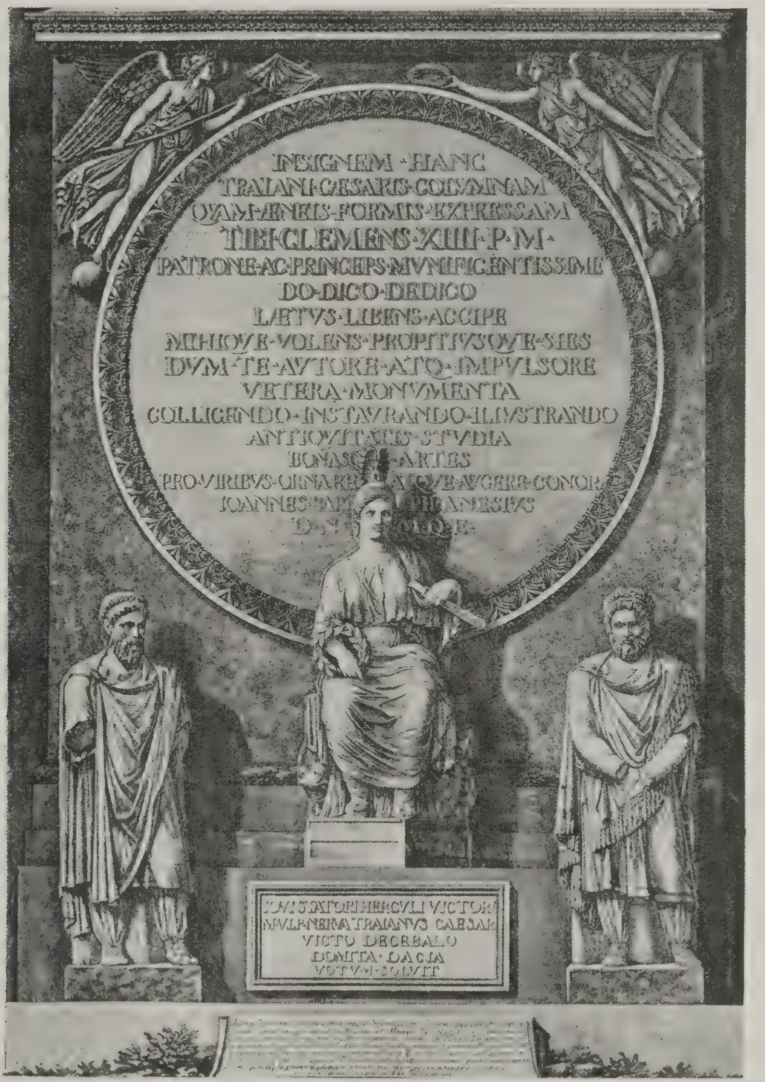
THE
ARCHITECTS' & BUILDERS'
JOURNAL.

Wednesday, February 24, 1915. Volume XLI. No. 1051.

No. 124.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(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

FEBRUARY 24, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1051.

EDITORIAL.

IT is succinctly reported that "the Record Committee of the London County Council has received applications for the renumbering of three places numbered 13, the suggested alterations being 11A and 12A. The applications have not been acceded to." That is to say, the Council very properly declined to lend countenance to a silly superstition. Appalling numbers of people who are otherwise apparently quite sane will unblushingly confess their belief that thirteen is an unlucky number, and certainly they make it so to the owner of the building bearing it. If it is a private house, there is difficulty in letting it, and the daring spirit who braves the risks, being *ipso facto* more or less of a materialist, expects a material reduction in the rent. In the case of business premises, the number, being of less importance than the trader's name, is kept inconspicuous or, where supervision is lax, is suppressed, because of the known reluctance of numbers of people to deal with an establishment of evil omen. Lest it may be thought that nothing could be more outrageously absurd, we may say that, within our experience, the objection has been extended, with perverted ingenuity, to numbers which, when added together, show 13 as the product—175, for example. It is all very idiotic, and the action of the Council in refusing to pander to such imbecility is not to be questioned; but, nevertheless, the application was obviously based on the very practical grounds which we have endeavoured to make clear.

* * * *

"Art underground" is no longer a monopoly of the Metropolitan Railway, whose charming posters have made the phrase popular. In the basement of the British Museum there are underground galleries, to which, as a precaution against air-raids, such art treasures as the Elgin Marbles, and parts of the Assyrian Collection, have been deported. From the walls of the National Gallery scores of pictures have been removed and taken below ground, with a more rational excuse than that given by a Minister of State—was it Palmerston?—for concealing the Turner collection in the cellars—"Ars est celare artem."

* * * *

Other institutions that are availing themselves of what Mr. Thomas Atkins would call their "funk-holes" are the London Museum, which is specially solicitous for its Old Chelsea and Bow China (a bomb in the Bow collection would quite outclass the proverbial "bull in a china shop"); the Natural History Museum, which recognises the fragility of the Great Auk's egg; and the Guildhall Art Gallery, whence, with other objects a very special Constable—"Fording the River"—has been removed from its customary station lest a worse thing happen to it. On the other hand, two new collections have been placed on view at the Tate Gallery, where the special loan exhibition of cartoons and drawings made by Alfred
Stevens for the decoration of Dorchester House
remain open for some months to come, as will a
large and very interesting collection of water-c
and other drawings by Turner, comprising his W
sketch-books, a few drawings of York, and a
thirty studies made at Petworth. But upon
grounds is it assumed that the Tate Gallery is im
from the attacks against which the other institu
(except the Imperial Institute) deem it necessa
make provision?

* * * *

Talking of underground art, there has be
serious proposal—the seriousness suggesting
deficiency in the sense of humour—that since s
people go to museums the more portable of the o
they contain should be exhibited in cases at the ra
stations!—the supply to be frequently changed.
a proposal is not so very much more idiotic than t
letting British Museum, South Kensington,
National Gallery exhibits go the rounds of the
vincial cities, which would then get something like
fair share of enjoyment out of the national collec
from which they are now shut off by distance. I
robust example of those irrefragable theories t
practice break down as completely as the Old C
and Bow crockery collection might be confid
expected to do on its first journey to Manchest
Sheffield.

* * * *

These fantastically foolish proposals may pe
serve to emphasise the strong common sense
project of which we may expect to see the imm
revival, in prospect of the industrial expansion
quent on the cessation of imports from e
countries and on the necessity for compensati
loss in imports to those countries by more ene
competition in neutral markets. Why, it has
asked, should our museums be almost exclusively
with antiquities and curiosities? Why should th
exemplify or illustrate present-day activity and a
record and promote progress in industrial art, s
and manufacture? Tentative efforts in this dir
are rather numerous, but have not greatly pros
Apparently they have suffered the doom of
ordinated and unconcerted effort; and if we are t
a Government Department of Industry, one of it
agencies should be a chain of industrial museum
trally controlled, and each of them an up-to-date
of the general industrial position. Free librarie
and there have taken some few steps in this dir
and, until proper buildings can be erected, might
to start a movement that should be organised a
as thoroughly as the Labour Exchanges, to w
seems to us to be a necessary complement. F
museum service—the mere exhibition of ma
and elucidation of processes—would be almost th

e possible functions of the Industrial and Commer-
Exchange, which should include technical educa-
by every available means making for the industrial
commercial expansion and prosperity which the
our Exchanges can certainly facilitate but cannot
tly promote.

* * * *

will not be enough, however, to spread industrial
commercial information. Much more aggressive
cs will be necessary if we are to make successful
on enemy trade. Sir William Ramsay, F.R.S., in
ery striking address at the annual meeting of the
loyers' Parliamentary Association, has left us in
loubt that for years past the Germans have been
ing unscrupulous and deadly warfare against
sh trade. "It is," he said, "the bringing of the
y machinery of the State to bear on the minutiæ
mmerce which makes it impossible for private
rprise to compete with such methods. One article
another is attacked as opportunity offers; British
ufacture is killed, and Germany acquires a
opoly. No trade is safe. And the result of such
esses which have been obtained in most of the
kets of the world has been to convince the German
n that Great Britain is a decadent nation, no
er worthy of the proud position she occupies,
n to the core, and only needing a good push to
to destruction. Hence the struggle we are now
ged in."

* * * *

we recorded in our issue of February 3rd, in the
rt of the annual meeting of the National Federa-
of Building Trades Employers, the Council of the
ration agreed to collaborate with the British
ineers' Association with the object of bringing
e the Government a scheme for the establishment
Ministerial Department of Industry. It was a wise
ion, and Sir William Ramsay's revelations should
ince the Federation of the vital importance of
pt action. It is time to fight, with all the
ledge and energy, skill and strategy we can
nand, the insidious subterranean and submarine
ess methods of the Germans, and in order to do it
ually we must sink petty internal rivalries and
e national solidarity. We must, in a manner, pool
esources, and also get the aid of the Government
nly in repulsing the underhand German attacks,
bounties and subsidies, and their systematic
mandering of freights—but in carrying on the
nercial war against them aggressively and
ively. No one doubts for a moment that we have
superior forces at command—better brains,
inventiveness, more delicate artistry, incom-
bly greater skill of hand. Our one pressing need
economic co-ordination and scientific direction of
forces, and for that we must look to the
rnment, because, as Sir William Ramsay's
ples show, private or semi-public enterprise has
d itself inadequate to so vast and complicated a

* * * *

w difficult it is to overtake and arrest a mis-
ption has been too abundantly demonstrated in
se of the Chancellor of the Exchequer's unfortu-
remark—made in a moment of tremendous
cupation with the weightiest matters of State—
e "did not think this the time to embark in great
ipal enterprises which had no reference to
ss." As we stated at the time, that utterance
open to serious misconstruction, and would
nly be wrested into an excuse for timorous
nony, although we knew quite well that it was
t to be interpreted in the light of previous
tations to let the nation pursue as far as possible
rmal course of activity in spite of the war. Even

the Housing of the Working Classes Committee of the London County Council has fallen into this misconception. By order of the Local Government Board, it has prepared a scheme for dealing with the Brady Street area in Bethnal Green under Part II. of the Housing of the Working Classes Act, 1890, but in submitting the scheme it cites the above quoted passage from the Chancellor's speech as a counsel of inaction, which, as we have previously shown, it was never intended to be.

* * * *

Our view, steadily maintained from the outset, is justified to the utmost in the reply by the Local Government Board to the Committee's representations. The Board state that they "have the authority of the Chancellor of the Exchequer for saying that the passages quoted were not intended to apply to a work such as the one in question." On a judicial view of the situation, nobody could fairly assume that they were; but the L.C.C. triennial election, falling due in March, 1916, limits the horizon. A show of tender regard for the ratepayer's pocket cannot in this particular instance annul the known obligation to build, but can be adroitly turned to effectual account in the gentle art of electioneering. We speak not as partisans, but as publicists; and that our observation on electioneering devices is strictly impartial will be conceded when we add that it can be easily adapted to apply with equal force to the opposition side of the argument. A plague of both their Houses, and of their eternal housing wrangles! What really concerns us is the possible effect of the Committee's pessimistic example upon other authorities, and against this we enter an emphatic protest. Such a policy is not merely pusillanimous, it is unpatriotic.

* * * *

It is decidedly interesting to watch the development of the two schools of thought in which town-planners are ranging themselves. In the one there are those whose interests are mainly sociological and ethical; on the other, those whose aims are more markedly practical. Between them there is much the same difference that distinguishes pure from applied mathematics. Fusion of these schools is hardly possible, but they need not oppose each other, and they can be mutually helpful, as to a certain extent they have been already; the one being perhaps the more fertile in ideas, and the other having the greater facility in crystallising them.

* * * *

It is to the latter school, to the men of action, rather than to the theorists, that attention will be chiefly given when the choice lies between precept and practice, as too frequently it does, with the result of too "business-like" an issue; the ideal being a mingling in just proportion of doctrine and conduct. It may be that the conferences on the rebuilding of Belgium will bridge over, at least temporarily, the visibly widening fissure between the two schools. At all events, it is gratifying to see that talk is being succeeded by action, and that in April next there is to be held a town-planning exhibition, having special relation to the immediate needs of Belgium. It is as yet too early for the precise character of the exhibits to have been determined in detail. There will be, of course, the usual plans, photographs, and models; but while these are certainly indispensable they are not fully adequate, and we suggest that they should be supplemented with select examples of the actual materials of construction, with particulars, in two or three languages, of quality, prices, and sources. Not very much space would be required. In an ordinary exhibition the trader naturally tries to make his stand impressive by its magnitude, but in the present instance, that object being beside the mark, samples need not be multiplied, yet they would, nevertheless, give a thoroughly practical character to an exhibition that, in their absence, must fall lamentably short of a full measure of utilitarian value.

HERE AND THERE.

THE bringing home of treasures from abroad has often been marked by ill fate, and prominence in the annals must be given to the adventures of the Elgin Marbles—now at last removed from sublime risk in the ground floor gallery of the British Museum to comparative security in the basement. The Earl of Elgin, our Ambassador to the Porte in 1799, had trouble enough, in the first place, to get hold of the sculptures on the Acropolis, not so much with the Turkish authorities as with the Houses of Parliament and the people at home. A "Memorandum on the Subject of the Earl of Elgin's Pursuits in Greece" was published in 1810, and this, I have no doubt, would furnish me with a wealth of data, but it is not at hand, and the present occasion must be served by a few facts from other sources. In the British Museum guide to the department of Greek and Roman antiquities. I read that "Lord Elgin's agents refrained to a large extent from taking sculptures whose removal would cause injury to the surrounding architecture," and elsewhere it is recorded that in 1801 the Earl procured a firman authorising him to remove "a few blocks of stone with inscriptions and figures"; so with the aid of a swarm of labourers, under the superintendence of Lusieri, he removed most of the remaining figures in the pediments of the Parthenon, together with the greater part of the metopes and the frieze; which would seem to show that he made good use of his opportunity—much better use than did Morosini, the Venetian general, who, in 1687, after the powder explosion had blown off the roof and much of the sides of the Parthenon, tried to take down the central group of the west pediment, and by sheer clumsiness brought the whole crashing to the ground. Yet, having at length secured them, Lord Elgin was only at the commencement of his worries, for when the Marbles were on their way to this country they were wrecked at Cerigo, and divers were engaged for three years in fishing them up. Eventually, as we know, they arrived here, and then began a storm of abuse for the Earl, who was accused of "vandalism, rapacity, and dishonesty"; and, further, it was questioned whether the Marbles were worth much artistically. As regards the vandalism, time has proved that if the sculptures had remained in position they would have suffered exceedingly from the weather (and, in these later days, from the smoke of New Athens), while as regards the rapacity, it would appear that if it was a financial speculation, the Earl came off badly, for the sum voted at length by Parliament in 1816 was £35,000, which left him nearly £20,000 out of pocket over the transaction.

* * * *

From two correspondents during the past week I have received newspaper cuttings which are not likely to have caught the eye of the general reader, and on that account they deserve mention in these columns. The first is from Paris, describing M. Poincaré's official visit to the Petit Palais to see the French and Belgian exhibits for the Panama-Pacific Exposition, the former comprising, among other things, a series of photographs of the towns which the Germans have got in their maw, the latter comprising, above all, Boucher's tapestries of the Battles of Alexander. But the point that strikes me in connection with this matter is not so much the exhibits themselves, but the gathering of them together in the very midst of a time of War, when we might have expected the French to excuse themselves the pains. My Paris correspondent also gives me the interesting information that most of the Ecole des Beaux-Arts men are at the front, and that up to the time of writing twenty-one had been officially reported killed. My other correspondent sends me a newspaper cutting
relating to a new building, of which the archite
described as "Mr. H. G. Crothall Friba." This s
thing we expect to find among the stock witticis
the Christmas play, but in a newspaper it ha
uncomfortable look.

* * * *

There are few things under the sun that Shakes
has not referred to, and the arts of building ar
among them. Of the architect as a professional
there is no mention whatever in the plays; only
indeed, does his name occur, and that in a figur
sense, Marcus, in "Titus Andronicus," speaking
irreligious Moor as the "chief architect and plott
these woes." But this is to be expected,
Shakespeare was contemporary with John Th
who may be taken as representative of the arch
of his age, and it is a nice point whether we are t
John Thorpe a designer or a master-builder.
image of the celebrated book of drawings in q
Elizabethan perspective comes to mind in read
passage in the second part of "King Henr
Fourth," where Lord Bardolph says:

> When we mean to build,
> We first survey the plot, then draw the model;
> And when we see the figure of the house,
> Then must we rate the cost of the erection;
> Which, if we find outweighs ability,
> What do we then but draw anew the model
> In fewer offices, or at last desist
> To build at all?

from which we may infer that in Shakespeare'
there was probably the same trouble over disc
plans as we are familiar with at the present time,
the architect sets before his client the Institute
of Professional Charges to substantiate his cla
a proper 2½ per cent. on the estimated cost. An
we get the companion picture, like Vesuvius at
and Vesuvius in Eruption, for after drawing a
with the plucking down of a kingdom, Lord Bar
adds:

> Like one that draws the model of a house
> Beyond his power to build it; who, half through,
> Gives o'er and leaves his part-created cost
> A naked subject to the weeping clouds,
> And waste for churlish winter's tyranny.

But it is the building workmen that claim
mention by Shakespeare. The best known refe
is that one of Smith the weaver in the second p
"King Henry the Sixth":

> Sir, he made a chimney in my father's house, and the
> are alive at this day to testify it.

In the same play Sir Humphrey Stafford excl

> Villain! thy father was a plasterer.

And Jack Cade, speaking of one of the children
Earl of March, declares that he was stolen by a b
woman, and

> Became a bricklayer when he came of age.

And if these are but references to a workaday
surely the Archbishop of Canterbury, in "
Henry the Fifth," lifts matters to a higher plane
he mentions:

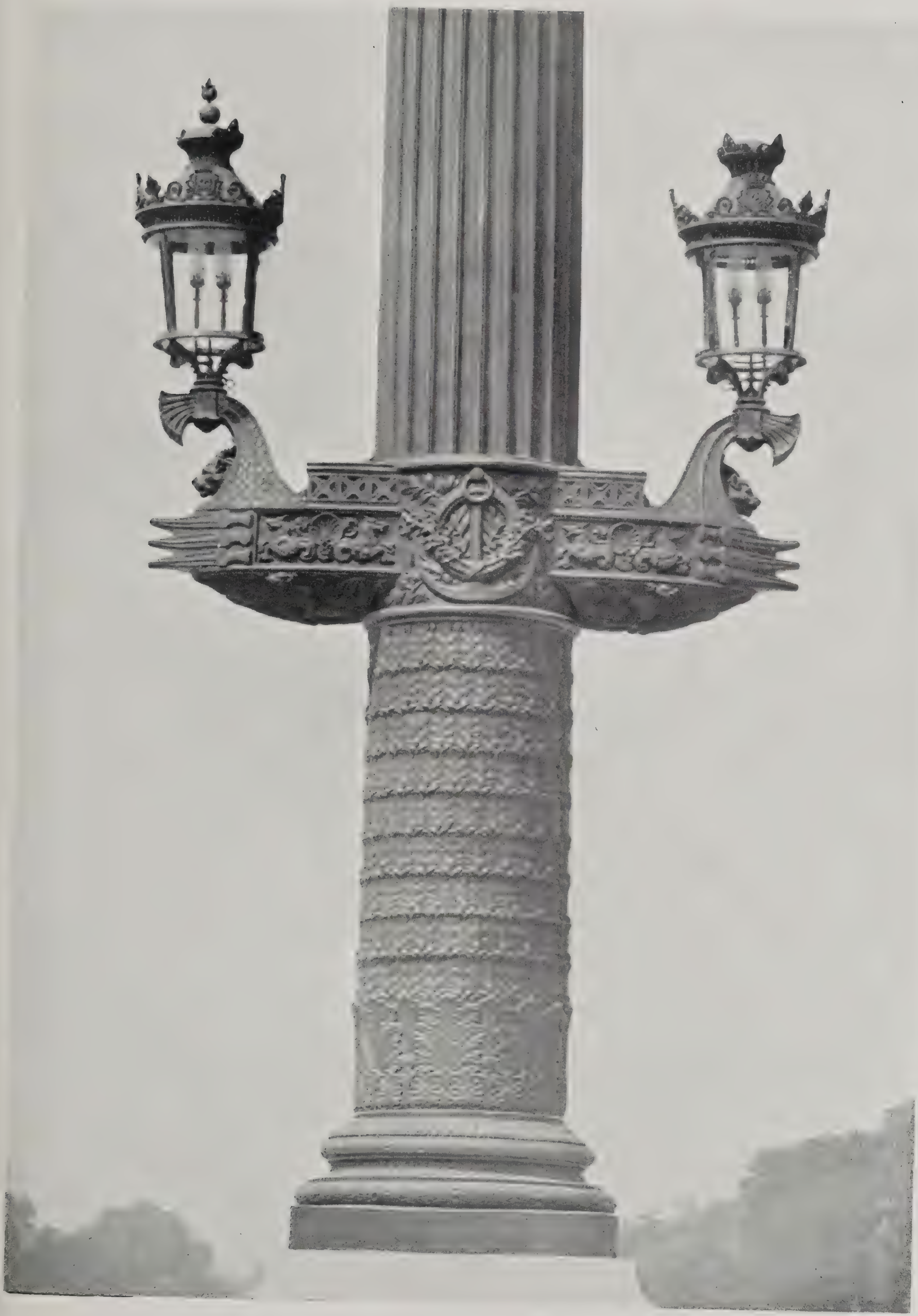
> The singing masons building roofs of gold,

which seems to take away the plumber's priority
matter of vocal music.

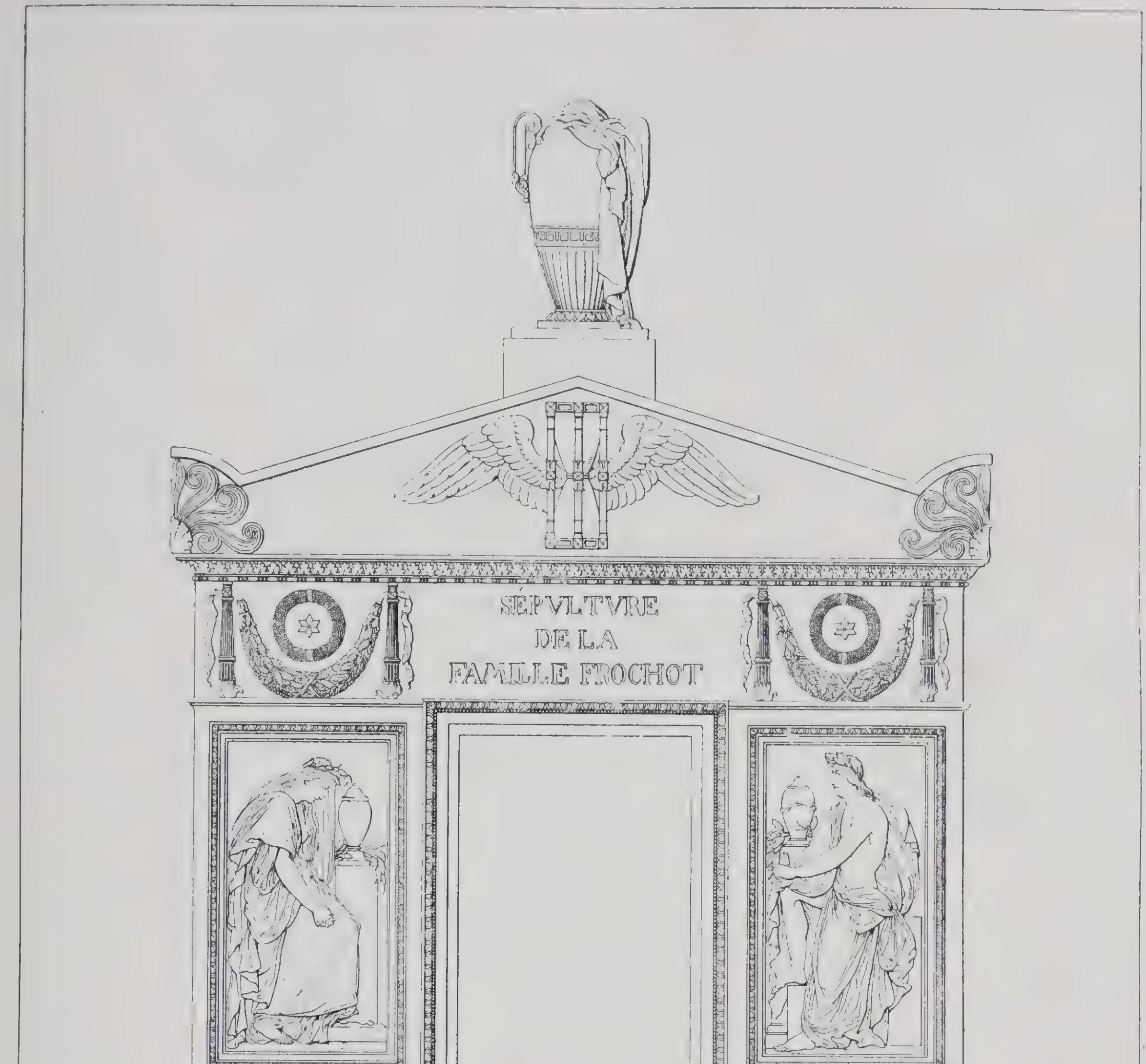
* * * *

Time always brings its revenges, but the sta
Joan of Arc at Longwy did not justify the foll
inscription written by the Germans on its ped
"The Maid of Orleans was always the enemy
English. The French are to-day fighting by th
of the English, hence Joan of Arc cannot be wi
French. She is with us." Consequently the name
be cut anew—Johanna von Ark.

UBIQ



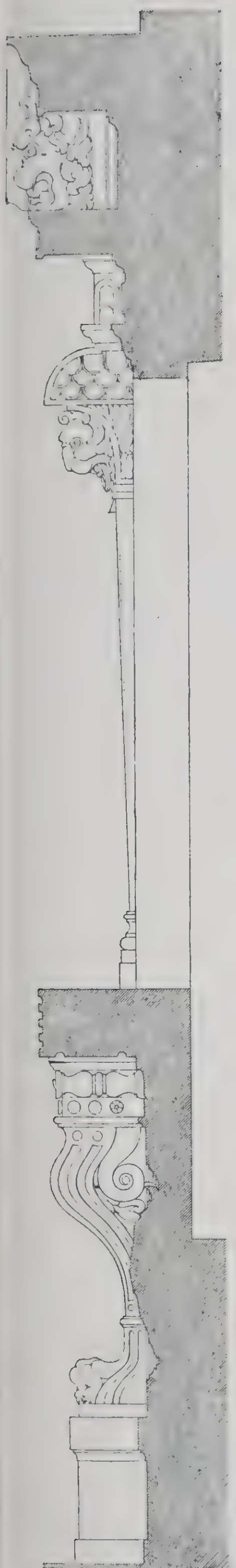
DETAILS OF CRAFTSMANSHIP. VII.—ROSTRAL COLUMN, PLACE DE LA CONCORDE PARIS.
HITTORFF, ARCHITECT.

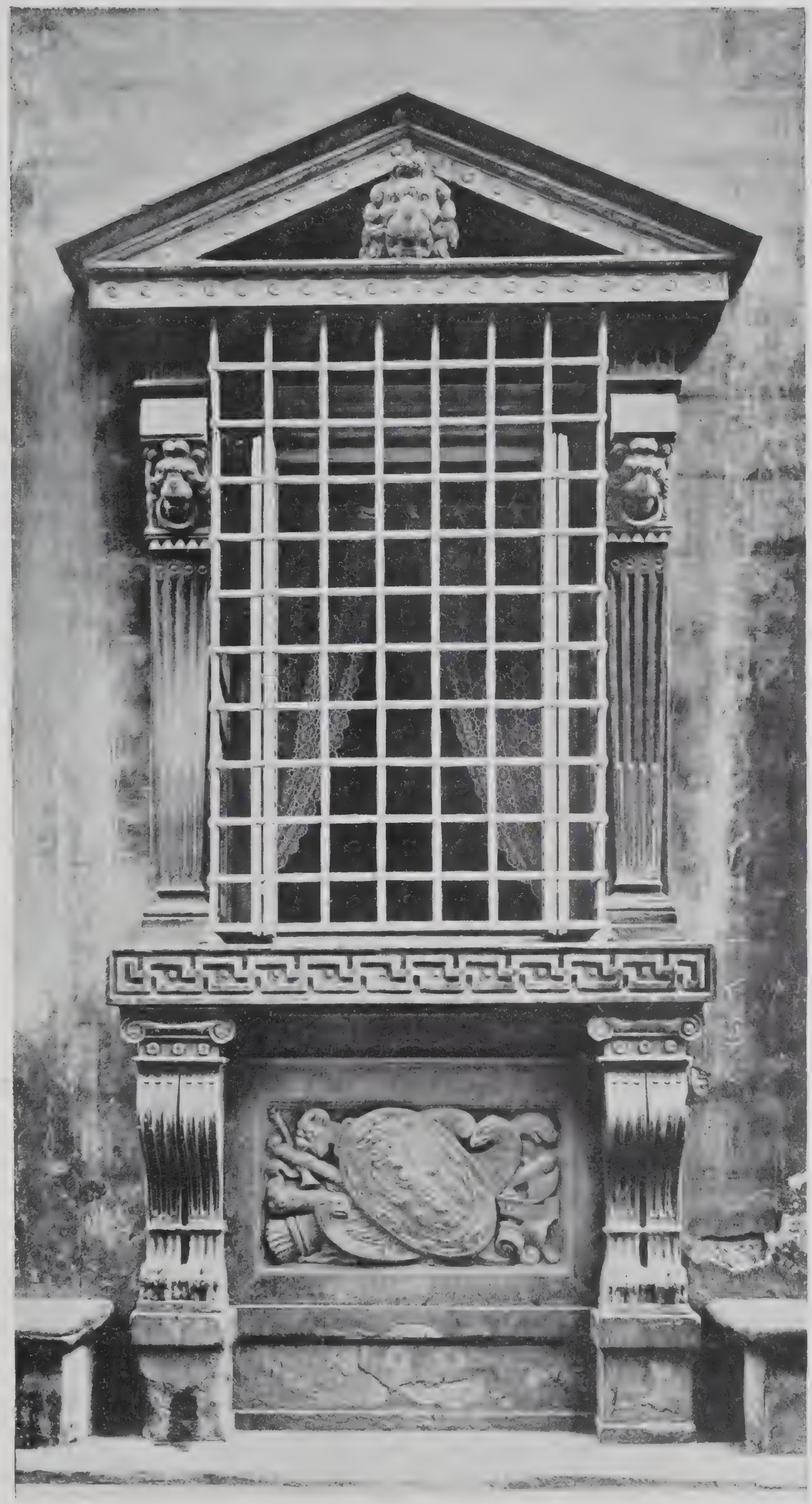


FRENCH MONUMENTS. V.—FROCHOT MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.

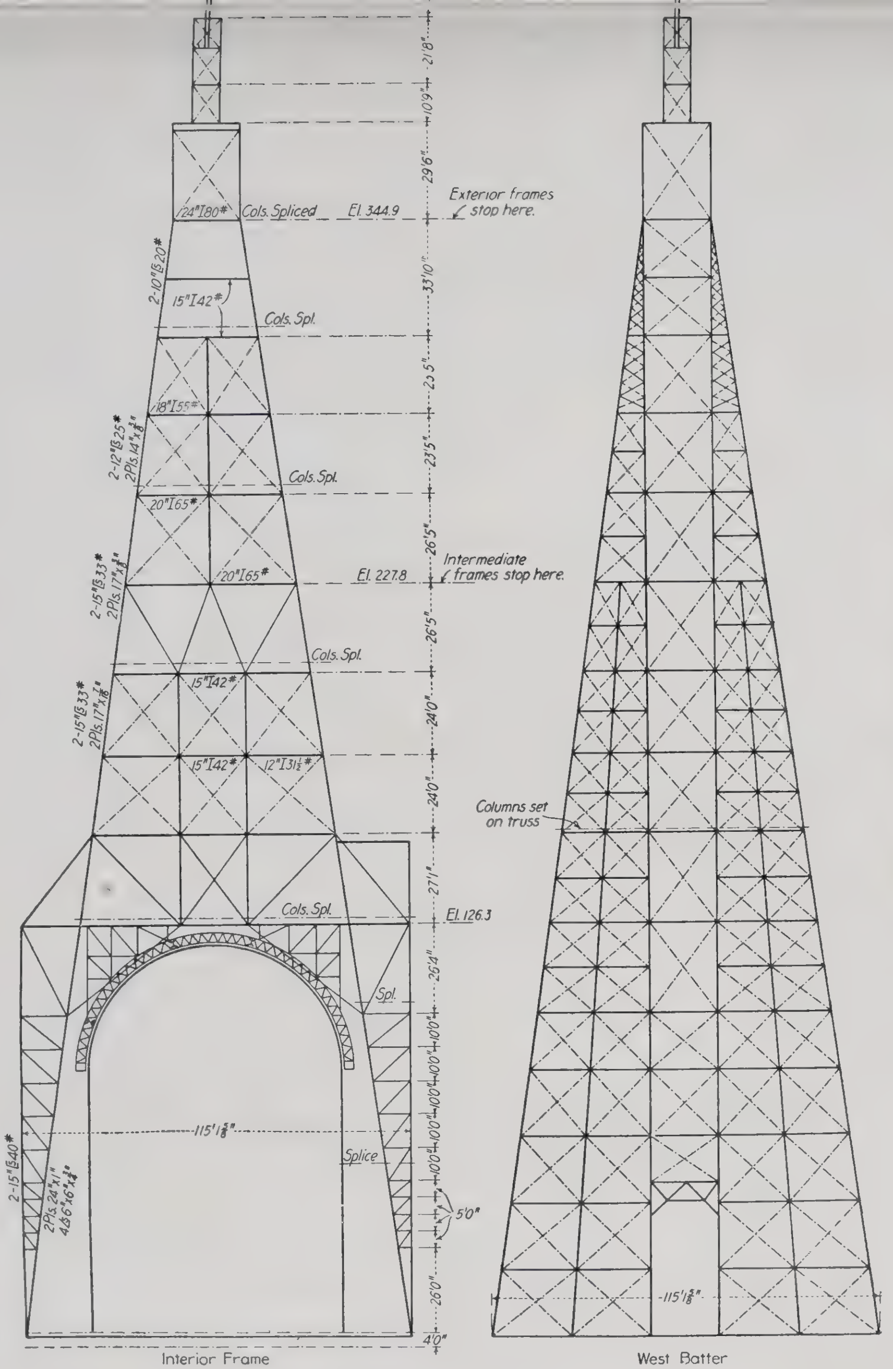
GOODE, ARCHITECT.

to "*The Architects' and Builders' Journal*," *Wednesday, February 24, 1915.*





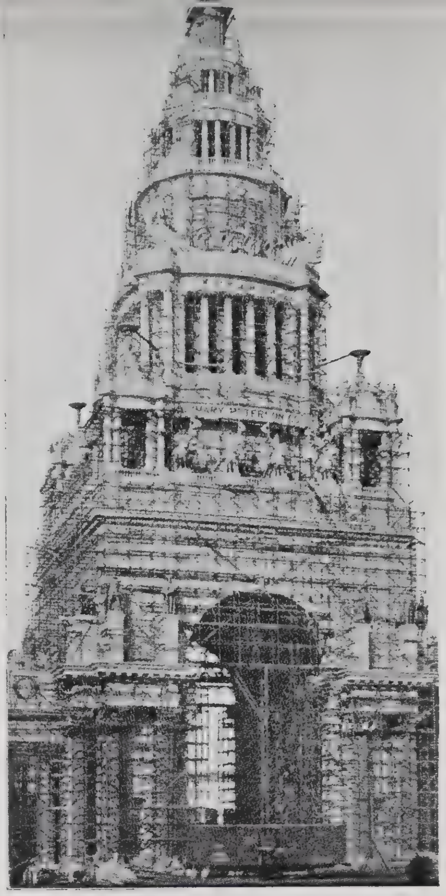
FLORENTINE PALACES. XI.—WINDOW, No. 10, VIA DESERVI.



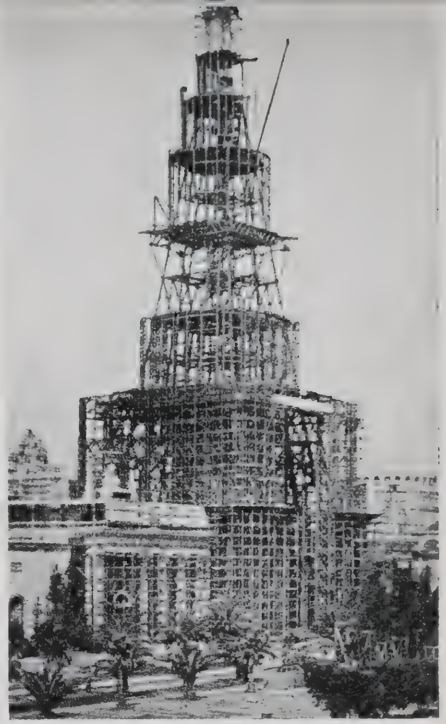
Interior Frame

West Batter

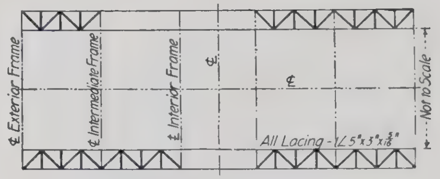
Framing of Steel Tower.



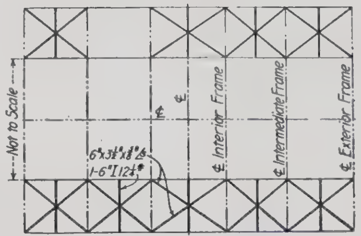
View of Tower before Removal of Scaffolding.



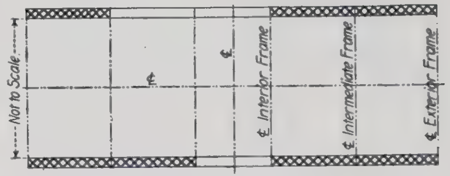
View showing Timber and Steel Framing.



Horizontal Bracing at El. 40.0



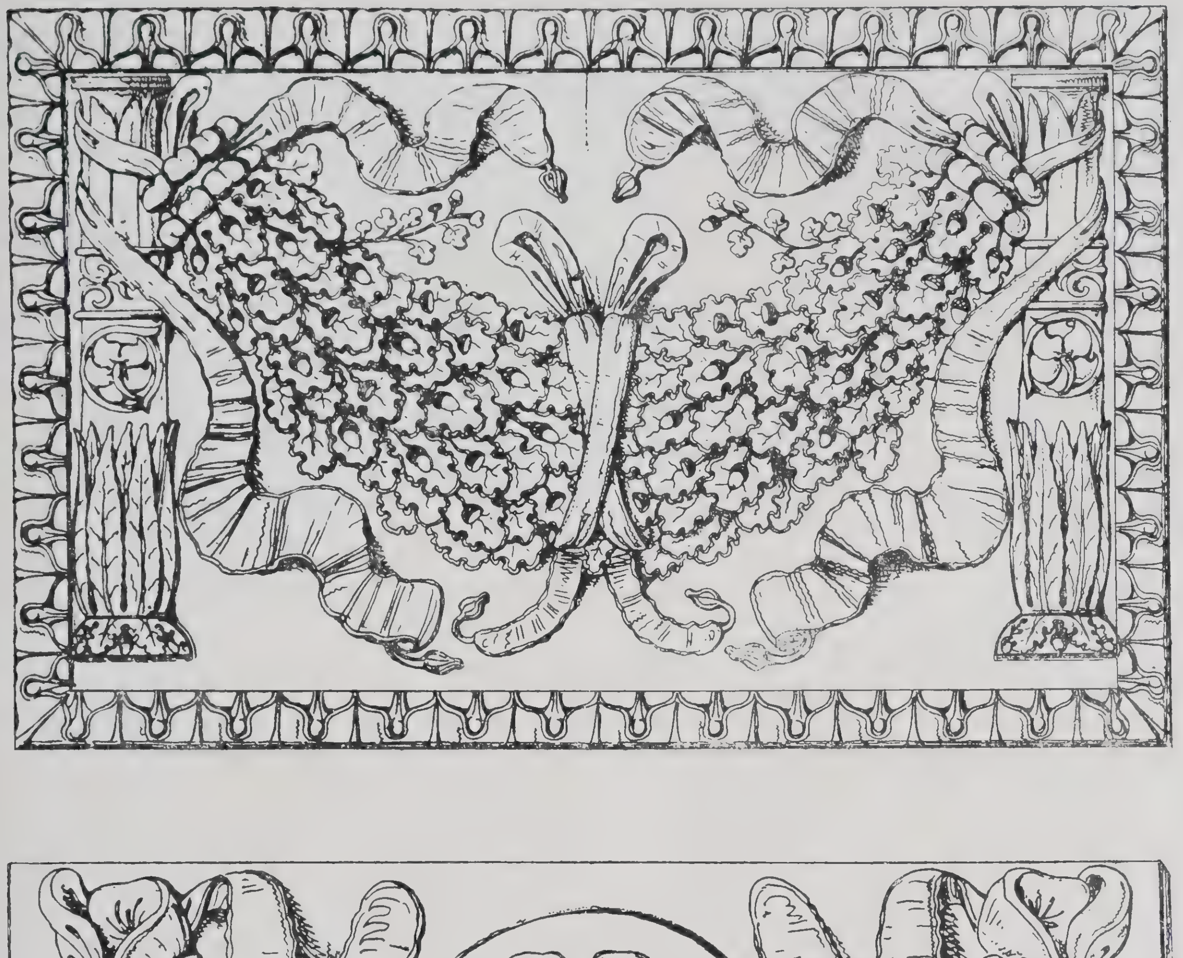
Horizontal Bracing at El. 100.0
(Bracing at El. 80.0 similar)



Horizontal Bracing at El. 20.0

Horizontal Bracing of Tower Legs at Various Elevations.

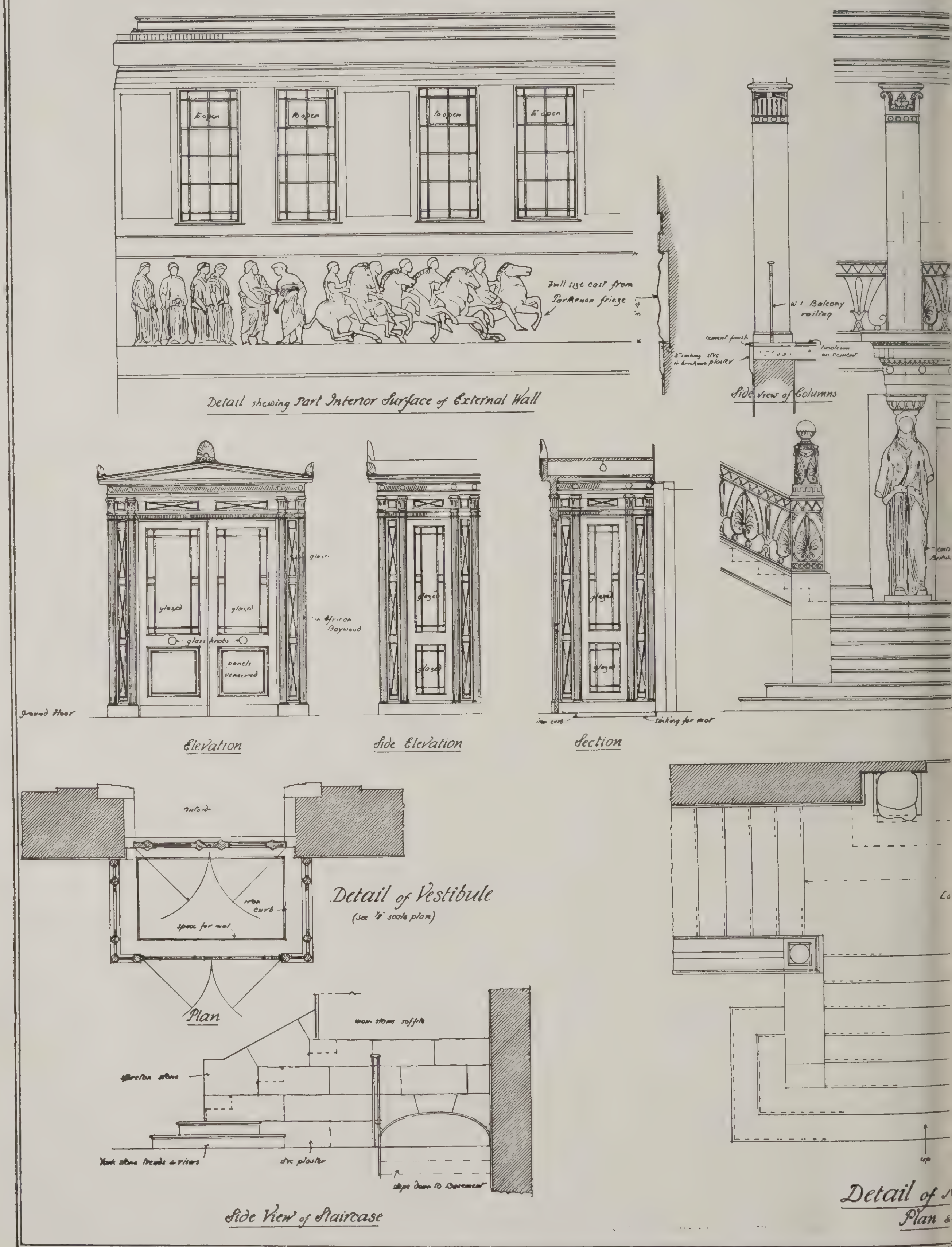
MODERN AMERICAN ARCHITECTURE (SERIES II.). XIV.—TOWER OF JEWELS, PANAMA-PACIFIC EXPOSITION, SAN FRANCISCO. THOMAS HASTINGS, ARCHITECT.



DRAWINGS OF ROMAN ORNAMENT.—II.

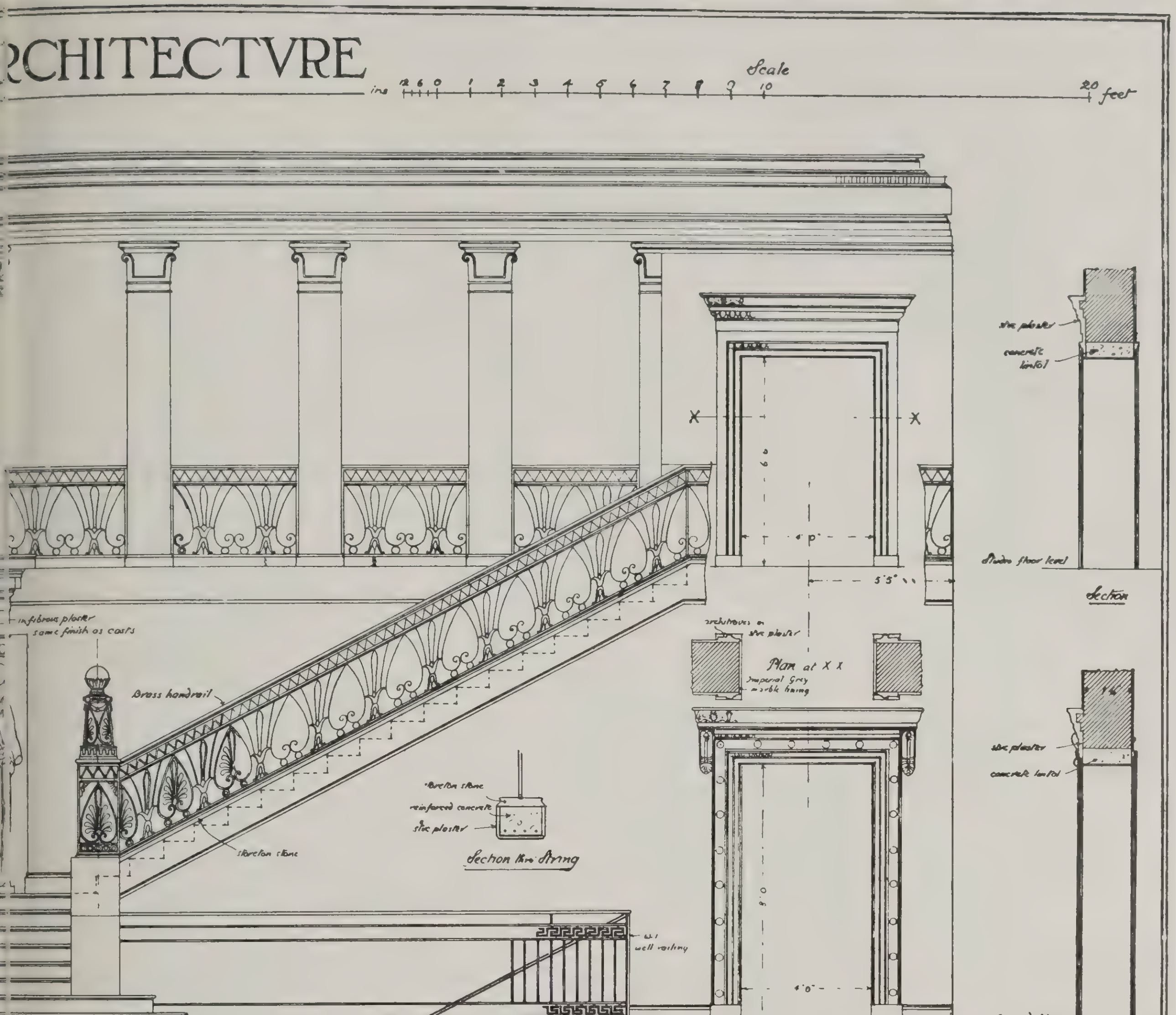
NEW SCHOOL

HALF INCH DETAILS of HALL OF CASTS



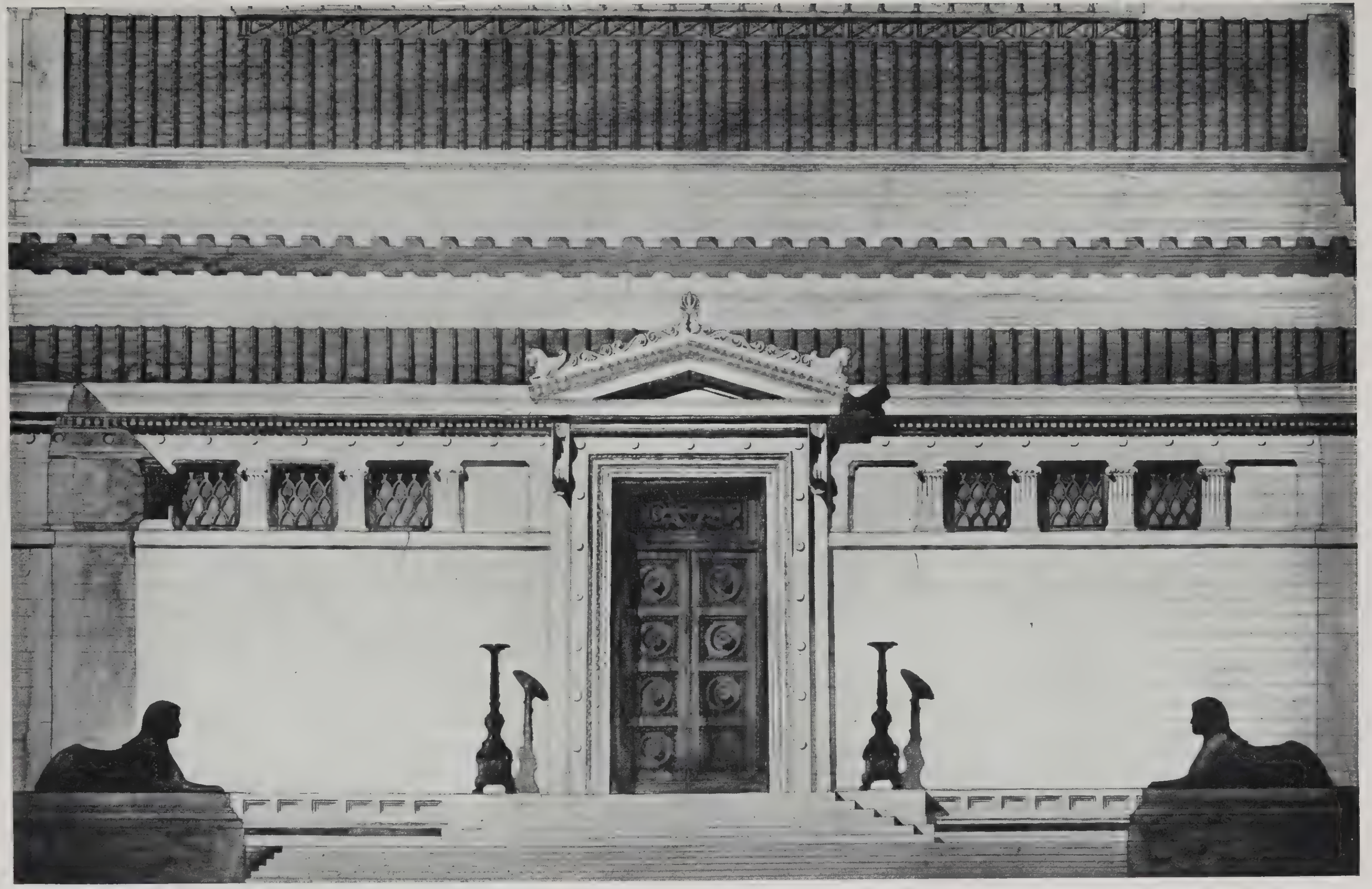
WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (SERIES II.). II

PROFESSOR C. H. REI



HOL OF ARCHITECTURE, LIVERPOOL: DETAIL OF HALL OF CASTS.

I.B.A., ARCHITECT.



STUDENTS' DRAWINGS. XXXIX.—DESIGN FOR AN ENTRANCE TO A MUSEUM.

BY R. A. DUNCAN.

THE PLATES.

ostral Column, Place de la Concorde, Paris.

IE Place de la Concorde is not only a magnificent
example of civic planning on a grand scale, but
is rich in its embellishments. There are the two
tains on either side of the Obelisk of Luxor, the
t seated statues at the corners, the fine sculptures of
es on high pedestals at the entrance to the Champs
ées and the Tuileries Gardens, respectively, and,
east, the series of rostral columns, of one of which
how a detail. Hittorff was chiefly responsible for
embellishment of the Place as we know it to-day,
the rostral columns are especially characteristic of
nanner in design. This type of column is taken
the Roman examples, in which the rostra or bows
ips on either side of the shaft served as emblems
nemorative of naval victories. In the Paris
nple, of course, they have no such significance,
g purely decorative in their application. The
nns, which are of bronzed iron, serve as gas
dards.

Monument in Cemetery of Père Lachaise.

ie monument illustrated this week is the family
of Frochot, who was Prefect of the Department
e Seine in the time of Napoleon. It is a simple yet
composition, the sculptured panels being
rably embodied. Godde was the architect, Raggi
responsible for the sculptures, and Plantar
uted the carved ornament. Though of stone, it is
d that the monument cost 20,000 francs (£800).

A Florentine Window.

is example—the last in this series—is a variant of
one illustrated last week. It does not call for
ription, its points of interest being obvious.

wer of Jewels at Panama-Pacific Exposition.

ie American exhibition buildings are always note-
hy for their architectural merit, and those of the
coming Panama-Pacific Exposition give promise
ceeding anything of the kind that has yet been
pted. There will be many wonderful structures.
time ago we published an illustration of the huge
e of Horticulture in course of construction. We
reproduce some photographs and plans of a still
remarkable design—the Tower of Jewels.
igh the scaffolding obscures it in the latest view
able, the strong and adventurous character of the
n is apparent. Mr. Thomas Hastings is the
tect of the Tower, full particulars of which will
und on p. 92 of this issue.

Roman Ornament.

ie two examples shown on the plate are both
ordinarily vigorous, though in both there is the
ncy to coarseness which is frequent in Roman
nent.

New School of Architecture, Liverpool.

studying this plate, showing a detail of the Hall
asts in the new School of Architecture for
pool University, reference should be made to the
illustrations of the building which were published
r issue for February 3.

Design for an Entrance to a Museum.

. R. A. Duncan's design for an entrance to a
um does not quite hit the happy medium between
ess and exuberance, but its tendency towards
emphasis may be counted for virtue in a young
ner. A student who begins baldly is apt to end
the same fault, for he early arrives at a dead-end,
eas the excesses—or perhaps one had better say
edundancies—of youth give scope for a weeding
runing process that makes for strength. A little
restraint, especially in the pediment and the door-
ling, and a little less manifest anxiety to express
ht what should have been merely suggested or insinuated as to the purpose of the building, would have given dignity and repose to a design that is nevertheless highly creditable to its author and to the Architectural Association School, in which he is a student. Quite evidently the A.A. School is doing excellent work, and quite obviously it does not repress originality.

PROFESSOR PRIOR ON THE ARTS OF THE LOW COUNTRIES.

PROFESSOR E. S. PRIOR, A.R.A., delivered last week two of the four lectures comprised in his Architecture course for this session at the Royal Academy. His first lecture was introductory on the Romanesque and Gothic arts of the Low Countries, and the second reached the great period of the Flemish style. Of some of its forms and expressions the origin, incidentally, was interestingly traced to the English development of architectural church style which is called "Decorated." Its sources are to be found farther back, in "monastic" art. But for the intrinsic character of the Flemish style we must search among its own conditions, and particularly in the material development of the great Flemish towns of Bruges and Ypres in the fourteenth and fifteenth centuries, and of Ghent, and especially Antwerp, in the sixteenth.

Among the conditional impulses were the materials of its sculpture—Tournai marble, say, and Dinant copper—which were fitted for object sculpture, and thus contributory to an arts and crafts movement. Bruges, commercial centre of European luxury, expressed itself in sumptuous church furniture, which, in association with architecture, illustrates one product of the fifteenth century style in the Low Countries, and its rich decorative intention transformed their architecture itself. Following this transition, we find architectural structure put into the background, the building skeleton of arches and vaults disappearing behind elaborate panellings and traceried ornaments. Within the churches, furniture in all materials multiplied, and tracery, pinnacles, tabernacles, and other decorative resolutions of architectural structure were used as a stylistic ornament. Without, the structure of façade and spire was treated as furniture and tabernacle work. In the Town Halls, the necessarily oblong block of structure took on conspicuously the likeness of immense, richly ornamented caskets.

Another characteristic, also controlled by the materials to hand, was the broad colour effect got from blended brick and stone. Hence the charm of this Flemish architecture, of which the essential quality may be said to be its picturesqueness: suggestive, brilliant, sensitive, without the intellectual perfections achieved by Greek singleness of spirit or the integrity of French constructional purpose. This "picturesque" arts and crafts architecture is essentially the art of cities, and it was in this architecture of citizens that the great change of style, associated in our minds with the sixteenth century, occurred. The stone jewellery of the older characteristic Gothic was discarded for classic ornament, and the Renaissance style appeared.

This implied that the masonic craftsman had been superseded by, in the modern sense, the "architect." What had been happening under pressure of convenience and necessity was that the building artist was finding architecture in the facts of the buildings, though only now was he able to cast aside the concealing and inconsequential fancy dress. At the same time there had grown up a public to whom the knowledge of Italian decoration appealed. Against this sense of design, of fitness, of constructive proportion, and selection of ornament was fighting an ornamental faculty divorced from structure, the prodigality of the inventive ornamentalist.

ARCHITECTURAL SCULPTURE IN SPAIN.

AT last week's meeting of the Royal Institute of British Architects Mr. A. N. Prentice, F.R.I.B.A., read a paper on "Architectural Sculpture in Spain." He remarked that Spain was perhaps the one country in Europe where the happy intermingling of these sister arts could be profitably studied. The profusion of decorative sculpture exhibited in the buildings might be traced to a characteristic love of display inherited from the Moors. These sculptures were little known in our own country, and on a first visit to Spain the architectural student, already familiar with Gothic sculpture in England, France, or Italy, would be astonished at the richness and voluptuousness of the work when brought face to face with many examples. No Spanish sculptor had ever risen to the fame of a Donatello or a Michael Angelo, but the country had produced native talent of a very high order, quite unsurpassed by any in England during the same period.

Mr. Prentice proceeded to sketch the development of architectural sculpture in Spain, which received a great impulse at the commencement of the twelfth century when French princes crossed the frontier to war against the Moors. Accompanying them came numerous prelates, and afterwards followed architects and sculptors. The influence of the great ecclesiastical order of Cluny was soon felt, and the Romanesque style gradually developed. The imagination of the Romanesque stone-cutters lavishly displayed on monuments and in churches could be admired on the double capitals in the cloisters of Santo Domingo de Silos. They were all richly carved with Bible subjects, with beast forms, fantastic monsters, and familiar scenes from human life.

With few exceptions the new churches were of moderate size. Their type was that of the basilica, with well-marked transepts, and occasionally at the crossing a lantern dome was added. At Toro, Zamona, and Salamanca this form of dome was further developed. It seemed to have been a feature on which the Spaniards exercised their ingenuity in evolving a type peculiarly their own. Santiago Cathedral, built after the same form of plan as St. Sernin at Toulouse, was the outstanding work of the new movement. Its wonderful Puerta de la Gloria was described by Street as one of the grandest glories of Christian art. (A full-size plaster reproduction of this doorway is in the South Kensington Museum.) At the church of San Vincente, at Avila, there was another beautiful portal, although one perhaps not so well known, to which additional charm was imparted by the introduction of quaint terra-cotta statuettes. The nave of this church, with its triforium and clerestory, was in the pure Romanesque style; indeed, the Romanesque style lasted longer in Spain than anywhere else, and continued till as late as the fourteenth century.

The tremendous activity of the thirteenth-century architects in France soon made an impression on Spanish architecture. The grave temperament of the Castilian was sympathetic to the severe French style, and as a result the cathedrals of Leon, Toledo, and Burgos came into existence modelled on buildings such as Amiens and Reims. The creative activity of the sculptors, stimulated by studies from life, produced work which deserved to rank with the best French examples, as, for instance, the figures on the portals of Leon, Burgos, and Tarragona Cathedrals. The sculptures at Burgos Cathedral were alone sufficient to indicate the proficiency of the stone-carver's art; those in the cloisters bore traces of colour. The earlier carvings, and in particular the figure groups so happily placed at the external angles of the cloisters, belonged to the opening years of the thirteenth century. Fortunately, up to the present, they had not suffered from restoration. The colours were faded, but the vivid
reds and blues, so much used by the Mo
decorators, could be easily seen, together with tra
gilding. The graceful ease of the later works o
fourteenth and fifteenth centuries might be studi
the door leading to the south transept. This
is further enriched by magnificent wooden
executed a century and a half later by order of B
Acuña.

Up to this time Spain was content to retai
services of French sculptors as her teachers
advisers. In the last third of the fifteenth ce
however, Flemish carvers were induced to visit S
and brought about a transformation of the art
architecture the geometric severity of early G
forms gave way to more flowing and sympa
lines, a taste had arisen for rich and re
ornamentation, and the mental activity, excited b
importation of new styles, together with the incre
technical dexterity, led to the introduction of
remarkable buildings.

Amongst the many Flemish architects who
brought over to Spain at the end of the fift
century, the names of Enrique de Egas and Juan
stood out most prominently. Ferdinand and Isa
commissioned the latter to erect the convent chur
San Juan de los Reyes, at Toledo, to commemora
defeat of the Portuguese at Zoro in 1476, and
same time they meant this church to be thei
resting-place. The building had a very bea
interior. It consisted of a nave without aisle
flanked with chapels. The sculpture took the fo
elaborate decorations on the walls, statues of s
curved Gothic tracery, with figures of children, an
colossal coats-of-arms of the Catholic Kings, supp
by eagles and accompanied by their badges and in
Juan Guas, assisted by his brother Enrique,
designed the family palace at Guadalajara for Ca
Mendoza. Here the treatment was fantastic but
appropriate to the southern climate. A charming
was produced by the brilliant sunshine on the
orange-coloured stonework, reflecting the clea
sky; nor could it be denied that this patio, with it
tiers of arcades, displaying the shields of the Me
and Luna families, and flanked with griffins and
heraldic lions, had a certain amount of eleganc
quaintness.

At Valladolid were two extraordinary exampl
this grotesque style, which the Spaniards designa
Estilo Monstruoso—the façades of San Gregori
San Pablo. The College of San Gregorio, com
in 1496, was founded by the Bishop of Valencia
sort of foundling hospital. There seemed to
record of the architect's name, but the details,
senting lions and figures of wild men, bore a s
resemblance to similar objects at Guadalajara
would almost suggest that this was the work o
younger Guas. In the centre panel there was a
heraldic tree supporting a royal coat-of-arms
lions, and surmounted by rich canopy work. On
side of the doorway were life-size warriors, and
was a relief over the lintel representing the fo
kneeling and dedicating his good work to St. Gre

The other façade—viz., that of San Pablo—mig
attributed, although it is only a conjecture, to
Guas, the brother of Enrique. The refined d
were quite as graceful as those at San Juan d
Reyes, at Toledo. This was one of the ri
specimens of a fifteenth-century doorway in C
The whole sparkled with original fancy. Here the
arts of sculpture and architecture were blended
most pleasing manner, although the general
might perhaps be open to criticism.

With the advent of the sixteenth century
architects arose in Spain, notably the Honta
of whom Juan de Hontañon was entrusted

uilding of the new Cathedral at Salamanca.
much deliberation it was decided not to pull
the old cathedral, and the new structure rapidly
on a site immediately adjoining. The west
with its profuse adornment of sculpture, was the
ortion of the fabric to be erected, developing later
arches, slightly reminiscent of Peterborough.
twenty years later, after the erection of Segovia
dral by the same architect, the Gothic style was
loned in favour of the new Plateresque style and
of the early Italian Renaissance.
ring this transition the "Mudejar" style, as it was
, came into existence. In this connection the
of the Escuelas Minores at Salamanca,
cteristically set in a blank wall, was well worthy
e as a specimen of civic architecture.
the discovery of the New World architecture
oped a strong Renaissance feeling. A new style
ally came into being, called the Plateresque.
ame seemed to have been conveyed from the
that its surface ornamentation and arabesques
bled the carefully chiselled work of the silver-
s. Spanish sculptors who had studied in the
s at Rome took part in the movement, and vied
he late Gothic sculptors in decorating buildings
a new garb. The old Gothic constructive
ples still remained, the new birth being simply a
e into Classic detail of Gothic ornament. The
or Philip Vigarni or Borgoña was one of the first
ne under the influence of the Plateresque. We
him in the capacity of architect undertaking the
ding of the lantern dome of Burgos Cathedral, a
l of rich Renaissance detail cleverly mixed with
othic. Other sculptors who carried out work at
s were the Colonia family and Deago and Gil
oe.
the student of the Plateresque the buildings in
anca would perhaps most strongly appeal. It
that city that Diego de Deza, Archbishop of
e, added the fine Plateresque façade to the
h of San Esteban, commonly called Santo
go. Previous to this the well-known façade to
niversity Library at Salamanca had been erected
supposed designs of Enrique de Egas. It formed
f the most brilliant examples of the reign of
and and Isabella, whose medallions are repre-
l over the central pier of the doorways enclosed
frame with a Greek inscription. Armorial
gs, busts, and other ornaments, including a relief
Pope, were all skilfully worked into this unique
of architectural scenery.
Prentice proceeded to refer in detail to
ens of sculpture on the sepulchral monuments in
where the finest and most perfectly preserved
gs were to be found

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by correspondents, who are asked to be brief, and to write on one side
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the sender.

Direct Employment of Labour.

Editors of THE ARCHITECTS' AND BUILDERS'
JOURNAL.

,—The leader in your issue of February 10
g on the above subject deserves to be laid to
by all who are minded to dispense with the
g contractor. There are others besides Mr.
r Lawrence who are in a position to tell of the
en economy in the direct employment of labour.
er authority, Mr. T. E. Coleman, in his "Pocket
or Estimating," says, on page 33: "Occasionally
gs are erected without the intervention of a
ctor, the work being placed under the supervision
xperienced foreman or clerk of works, whilst the
en are employed and paid direct, and materials
purchased as required. *Such buildings generally cost considerably more* [the italics are mine], and also occupy a much longer time in construction than they would otherwise have done if executed by a general contractor under an ordinary building contract." This method, the direct employment method, has a vogue among some landlords, and is fostered by subordinates on their estates in order to get into their own hands the management of building affairs for which they have had no special training, practical or artistic.

In the case of the Theosophical Society, they need not lay "the flattering unction to their hearts" that with the return of peace the direct employment method will promise any better than it did before the War, as compared with the usual custom of getting work done under a building contractor.

London, W.C. R. W. COLLIER, F.R.I.B.A.

AMERICAN SCULPTORS APPEAL AGAINST DESTRUCTION BY WAR.

THE following resolution addressed to European belligerents was adopted by the National Sculpture Society of the United States of America on January 15:—

The National Sculpture Society of the United States of America, a society whose membership includes men of American birth and men of European birth, united by a common aim to cherish the art of sculpture in this country, hereby makes an earnest petition to all those now engaged in warfare, whether offensive or defensive; and prays that they may respect and spare the world's works of art, wherever found.

Man's pictures, sculptures, temples, and libraries are his monuments to the soul and its aspiration, and hence belong not only to the races that create them and the places that enshrine them, but to the whole world. They are held in trust, as an inheritance. Whether such memorials of the spirit are in France or in Germany, in Belgium or in Britain, in Austria or in Asia, the destruction of them shames the destroyer, and makes all people poorer.

The National Sculpture Society does not portion blame or praise for acts of war when it states a fact which the best on both sides,acknowledge with sorrow, namely, that in the first five months of the present European war sacred monuments of art and science have been irreparably injured. Shrines that five months ago were living messages of art are now nothing but mournful memories in archæology. Looking toward the future rather than the past, the society asks: Shall warring people continue such destruction as this they already deplore, and thus increase the weight of disgrace that already lies heavy upon our twentieth-century civilisation?

Perhaps Europe herself has scarcely understood the pricelessness of her own monuments. She grew up with them, she became used to them. Great architecture and great sculpture were her inherited commonplaces of daily life before ever Columbus set sail for our newer world. But the eyes of American artists are neither seared by war nor sated by custom. In our younger land, whose whole national artistic life cannot yet be counted by centuries, our artists know from pioneer experience that it is a difficult matter to produce a nation's masterpieces, and therefore they feel the more keenly that it is a crime to destroy them.

The National Sculpture Society is gratefully aware of the debt our country owes to Europe for her help and sympathy in our effort to build here on our own soil a worthy national art. Will not Europe now further extend this obligation by showing us an example—heroic, perhaps, at the present hour—an example of that spirit of reverence in which all that is best in art is created and conserved? This our prayer springs from a hope and a good wish for all mankind.

THE TOWER OF JEWELS.

Rising to a height of 435 ft., and overtopping surrounding domes and arches by 250 ft. or more, the Tower of Jewels fulfils its function as the dominating feature of the architectural scheme of the Panama-Pacific Exposition at San Francisco. To an elevation of 152 ft. above the ground the walls of the tower rise vertically, forming a cube, 120 ft. square in plan, the cube being pierced in a north and south direction by a barrel arch, the soffit of which is 119 ft. above the court. The clear height of the vault is notable, and is made possible by two-hinged arches measuring 126 ft. from the bottom hinge to the centre of the lower chord. Above the top of the cube the structure consists mainly of a series of cylindrical portions of variable and rapidly decreasing diameter, composed of balustrades, colonnades, and heavy belt courses. The outstanding ornament upon these upper decks is elaborate. The structure gains its name by the studding of its exterior with thousands of cut-glass "jewels" which, in the bright sun or under the searchlight beams at night, are expected to present a brilliant and dazzling spectacle.

The main steel frame of the tower supports an exterior shell of timber, plaster and staff. The great rectangular box below El. 152, as well as the flanking colonnades are self-supporting timber structures slightly tied back to the steel frame. The coffered ceiling of the barrel vault is suspended from the steel arches. Above the rectangular section the successive decks are carried upon timber brackets resting in seats provided on the steel frame and secured to it by rods and clip angles. Upon these decks are framed the walls and outstanding ornaments of the tier above.

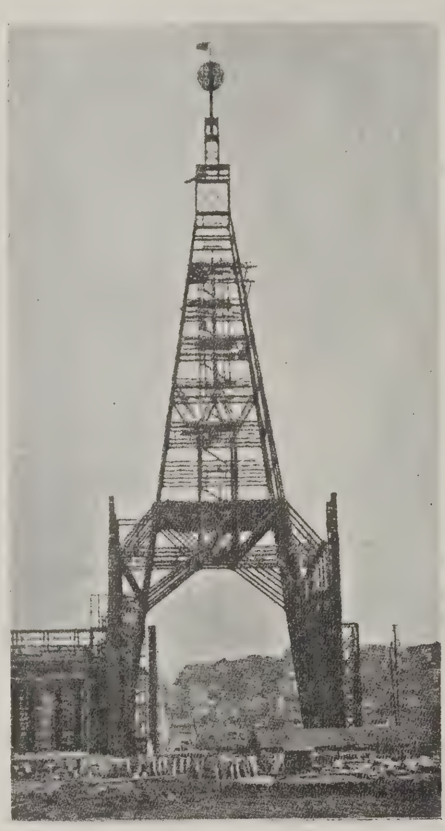
The steel structure consists mainly of six frames, parallel to each other in plan, two of them vertical, the other four battered. The two vertical frames, designated as the interior frames, rise to an elevation of 364 ft., being 20 ft. centre to centre throughout. Two exterior frames are battered so as to meet the vertical interior frames at El. 335. The intermediate frames also batter at half the rate of the exterior frames, and if produced would also intersect the interior frames at El. 335. The intermediate frames, however, are discontinued at El. 228 to simplify the construction. Above El. 335 all columns are vertical.

Below El. 152 the six frames are constructed as two-hinged arches with elastic ties, their feet resting on twelve cast steel spherical bases, which are in turn supported upon reinforced concrete slab footings, capping pile clusters.

Cross-bracing is introduced between the six frames, both in the planes of the main batter posts and in the planes of the lower vertical members of the main arches from El 126 to the ground. Bracing is further provided in the planes of the knee braces and the hip members of the arches. Horizontal bracing is placed at 20 ft. intervals vertically in the lower legs of the frame and at approximately 25 ft. vertical intervals, immediately below the floors, throughout the upper reaches of tne frame.

The exterior walls consist only of staff and plaster on metal lath, spiked to the studding and furring timber. With the exception of a loose plank floor at El. 152, intended to protect the main plaster arch from injury by falling objects, there are no complete floors in the building, the several decks extending but a few feet inside the exterior walls. As spectators are not to be permitted within the tower, even these floor systems were considerably lightened in the design. A live load of 50 lb. per square foot was taken to ensure stiffness, but was not carried into the column investigations. There are no interior partitions. The staff was taken at 25 lb. per square foot, including the timber backing sticks, though not the main studding of the walls. Plaster on metal lath was taken at 25 lb. per square foot. The dead loading was therefore quite definitely known, and, with the estimated weight of the steel itself, could be combined with the wind loads, as described later, and carried to the next level below.

The wind load as used was 24 lb. per square foot of vertical projection. Wind concentrations were then determined for the several levels, the wind between panel points on the steel frame being carried equally to the floors above and below by the wall studding. The wind loads thus concentrated at the floor levels were distributed among the several frames. Two cases were considered—wind parallel to the main frames and perpendicular to them. Having the panel point concentrations for the main frames in accordance with the above assumptions, a graphical stress diagram of the usual form was carried through.



TOWER OF JEWELS, PANAMA-PACIFIC EXPOSITION : STEEL FRAME.

Below El. 152 the main frames were considered to act as two-hinged arches, carrying the vertical and horizontal loads from the structure above as concentrations on their upper chords at the points of the column connections. About the east and west axis of the tower the stresses and, therefore, the frames are symmetrical, requiring three types of frame, two in each type, designated respectively as the exterior, the intermediate, and the interior.

In making the foundations, piles were driven in clusters under the feet of the
twelve main columns, the numbers
groups ranging from 25 to 42. The
in each footing are capped by a bl
concrete, rectangular in plan to su
arrangement of the piles.

In addition to the main recta
blocks, considerable concrete was
subsequently in and about the cast
bases for the support of timber col
A Well-graded 1 : 6 mixture was us
the piers. Six concrete troughs
placed for the support of the steel tie
bers between the pins of the main a
These troughs were for the dual p
of heat insulation and protection
bending under settlement of the roa
the ties being placed as close to th
face as practicable. After the steel
tion was complete these troughs were
with a 1 : 8 concrete.

With the exception of the large
columns of the tower proper, all
framing in the colonnades and the
courts is carried on spread footings
sand boxes introduced where nec
to offer anchorage against overt
wind moments.

For the feet of the two-hinged ar
was thought that some provision sho
made to guard against indeter
bending in the legs, such as might
from unequal settlement of the fo
tions, unsymmetrical wind or tempe
loads, or other such cases. A unifor
tribution of the load was, of c
desired between the cast steel base a
concrete of the footing. All of thes
were accomplished by the use of
mental spherical bearing. Also s
bearing greatly facilitated closin
arches in erection.

These bases are of cast steel, circ
plan, and 6 ft. in diameter. A c
spherical bearing, turned to a rad
3 ft., was supported, concave upward
sixteen radial ribs. Into this sock
placed the convex bearing shoe whic
to the structural steel of the leg.

As regards stresses on the tower
evident that the enclosing of the steel
within the timber and plastered wall
the burying of the tie members
the pavement of the court, ma
reduce the temperature range to whi
steel arches are subjected. It was
fore thought justifiable to neglect te
ture stresses. The wind stresses
diagonal tension rods were taken at
cent. of the stresses resulting from a
wind, and designed at 20,000 lb.
in. This was thought justifiable i
of the considerable stiffness of the
itself.

The plans were prepared by the d
of works of the exposition compa
which H. D. H. Connick is direct
A. H. Markwart assistant director of
The structural work and substructu
designed by Mr. Frank S. M. Harr
others under the immediate supervi
H. D. Dewell, chief constructional
neer. The architectural design w
Thomas Hastings, of New York.

The first design of the structural
the tower was made by J. D. Gal
consulting engineer, of San Francis
writer acting as his principal ass
The steel contractors were Dyer Br
of San Francisco, while the genera
tract, including all except the steel
was executed by Commary-Pe
Company, Inc., also of San Francis

In a supplementary plate in the
issue are shown illustrations of the fr
of the steel tower, views showing the
before removal of scaffolding and th
ber and steel framing, and dia
showing the bracing at various eleva

E REBUILDING OF BELGIUM.

February 15 the Conference on the ing of Belgium was resumed at the all (it will be remembered that the proceedings were reported in our or last week).

Helleputte, the Belgian Minister of lture and Public Works, again pre- The week-end had been spent by legates in visiting the Garden City hworth and the Garden Suburb at stead.

Raymond Unwin submitted a paper he Principles of Legislation in Re- of Town Planning." The fact, he hat town planning schemes were to strictly circumscribed areas was ise of many difficulties. He was of , therefore, that the plans for the ing of Belgian cities should embrace the whole of the country, and con- tly both the State and the municipal ovincial authorities should take the in hand, in order that overlapping be avoided. He suggested that the le would be to leave to the smaller nicipal authorities all the details of nning which concerned only their rea, but that in all matters which ally affected the adjoining areas, the hould be carried out by the superior ty.

essor Adshead explained that the Planning Institute had decided to ie the good work commenced by that ng by organising facilities for con- s, studies, and exhibitions in con- with the question of rebuilding Bel- (particulars of which are given v.

G. Montagu Harris, chairman of the tnership Tenants' Housing Council, at if a garden city tended to outgrow its assigned to it, recourse must be the building either of a garden or a new garden city beyond those

. C. van Spaendonck said that the tion for the construction of garden Belgium would lead to no practical f they did not take into account that orth was constructed for the com- ood on what might be called com- ic principles. In Belgium it would icult to put such communism into e, for that country had compara- ew wealthy men desirous of further- jects for the public welfare, such as in England.

essor Van Hecke, of the University vain, read a paper on the Belgian ating to building.

Henry R. Aldridge, secretary of the al Housing and Town Planning l, read a paper on "The First ' in which he pointed out that it was sible as yet to say positively in what on Belgium would be left by the in- On the question of the cost of re- g the Belgian cities, he said that the would cheerfully come to the aid of lgian people.

resolutions, after expressing general ient with the principles of the Cities and Town Planning Asso- , recommended that plans in har- with those principles should be pre- of the towns and villages that have holly or partially destroyed in Bel- that recommendations should be vith regard to width of streets, etc., view to securing hygienic conditions inhabitants, and that the distribu- State grants should be made sub- the adoption and execution of plans ing out, extension, and improve- These resolutions were carried ously.

Town Planning Exhibition.

The Town Planning Institute, working in co-operation with the Belgian Ministry, has appointed a special committee to deal with this subject. It is proposed to organise an exhibition, to be held in April, and, in connection with it, a study group. A portion of the new buildings of the School of Architecture and Town Planning at University College, Gower Street, has been placed at the disposal of the committee. It is fully recognised that the replanning and rebuilding of Belgium is essentially a work for the Belgians themselves, and their own experts. At the same time the British technical and legal professions will gladly give any assistance in their power, and the function of the committee will be to provide facilities so that this great work may be commenced by those who are now of necessity resident in England, together with any others whom the Belgian Government may designate for the purpose. It is intended that the exhibition shall both illustrate the present condition and needs of Belgium, and also bring together examples of the best work that has been carried out in other countries. It will include as complete a set as possible of plans, views, and photographs of Belgium, both as it was before the war and as it is now, together with a historical series illustrating the development of the cities of the Netherlands. Examples of town planning likely to be useful for study purposes will form an important feature, and will include exhibits illustrating systems of intercommunication, the formation of harbours and docks, the construction of roads, and their planting, and the laying out of open spaces. A small entrance fee to the exhibition will be charged to the public, which will, it is hoped, cover the expenses of collecting and hanging the exhibits, but in order to meet any possible deficit it is proposed to form a guarantee fund. Money will also be needed to carry on the study work, provide materials, and in various ways further the objects aimed at. Those who believe that such an exhibition and careful study of the huge undertaking which lies before the Belgian people will help them, out of the ruin which has fallen upon their country, to secure some little compensation in the shape of improvements in the convenience of their communications, the health of their homes, and the attractiveness of their towns and cities, are invited to become guarantors towards the cost of the exhibition and subscribers to the general fund. The committee invite the loan of drawings, photographs, models, etc., for the exhibition. Particulars in the first instance should be sent to the Secretary, Town Planning Institute, 4, Arundel Street, Strand, London, W.C.

ENQUIRIES ANSWERED.

Hollow Walls.

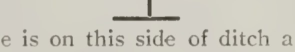
"Glasgow" writes: "I anticipate building a bungalow cottage soon, and am in doubt regarding the outer walls, which are to be of brick, rough-cast. The site is partly sheltered and partly exposed to the weather. I should like to have your opinion regarding cost and weather-resisting properties. In Scotland here the method is to build $13\frac{1}{2}$ in. or 9-in. walls, rough-cast, with lath and plaster on the interior surface. Personally I favour the hollow wall, and would like to know if an 11-in. wall is weather-tight and warm enough in winter."

—In my experience 11-in. cavity walls, properly constructed, are both drier and warmer than 14-in. walls or 9-in. walls rough-cast. The points which need special attention are: (1) Great care must be taken to keep the cavity clear of droppings lodged on the iron ties or accumulating at the bottom to a height above the damp-course. An electric flash-lamp is a valuable accessory for inspection of cavity from time to time during progress. (2) The protection of heads of all openings with metal trays is essential; otherwise spots of damp will appear below after prolonged spells of bad weather. (3) In exposed situations the frames should be set flush externally, and internal reveals lined with rough slate set in cement below plastering. Damp often drives through in this position where cavity is necessarily discontinued. (4) For preservation of warmth the cavity should not be ventilated externally, but from the space below floors or cellar, as with 11-in. walls the inner $4\frac{1}{2}$-in. skin quickly conducts heat to the air layer and creates an upcast, with rapid change of air, and heat loss by combined radiation and convection. As compared with strapping lathed and plastered, any directly plastered wall will often show moisture from condensation when the surface is cold, and a sudden change of temperature with humidity occurs. If the hollow wall were used, and lath and plaster in addition, an excellent result would be obtained. As to cost, where workmen are accustomed to the method the 11-in. cavity wall costs about midway between 9-in. and 14-in. solid wall. See illustrated article in "Architects' and Builders' Journal," March 20, 1912. G.

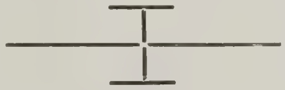
Boundary Rights.

"Ipswich (H. J. W.)" writes: "Kindly state the rights of ownership in boundaries of fields by hedges, ditches, etc.

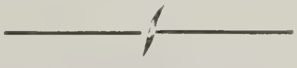
—Edge of ditch, 4 ft. from centre of hedge



Hedge is on this side of ditch and both hedge and ditch belong to this owner. The same sign is used for a fence or wall which belongs wholly to owner on this side.



Boundary in centre of hedge or wall with ditch on both sides.



Boundary between properties in same ownership. G. A. T. M.

Points on Theodolite.

"Ashton-under-Lyne Pupil" writes: "What is the reason for reversing the east and west points on theodolite?"

—The N. point is beneath the objective glass of the telescope, and rotates horizontally with it, while the needle always points to magnetic North. Thus when the telescope points N., the needle, telescope, and N. point agree, but if the telescope be swung towards the East, it carries the N. point on the compass card with it away from the needle, till the E. point on the West side of the compass card is brought beneath the needle when the telescope points to the East; so that, while the needle really points North constantly, it will indicate that the observer is looking towards the East when it lies over the mark E., this mark being placed on the W. side of the card. In the mariners' compass it is different, for then the card is attached to the needle, which it is not in the theodolite or miner's dial.

G. A. T. M.

NEWS ITEMS.

Stained-Glass Windows in the Peace Palace.

It is officially stated that during 1914 Britain contributed £2,475 towards the provision of stained-glass windows at the Palace of Peace at The Hague.

Collapse of a Building.

At Bury last week eight workmen were killed and several others seriously injured by the collapse of an uncompleted machine house forming part of the Bridge Hall Paper Mills, owned by Messrs. James Wrigley and Sons, Ltd.

Equestrian Monument to Lord Roberts.

It has been decided to erect at Glasgow a replica of the equestrian monument to Lord Roberts by the late Harry Bates, A.R.A., the original of which is set up in the Maidan, at Calcutta. This monument shows the Field-Marshal seated on his favourite charger "Volonel" on a tall pedestal. The pedestal has columns at the corners, with bas-relief panels—one showing Highlanders, Gurkhas, and Sikhs marching together, another showing a battery of artillery coming into action, while at either end are figures symbolical of "War" and "Victory." The pedestal of the replica at Glasgow will be of granite, and the statue, frieze panels, figures, and inscriptions of bronze.

New Schools at Market Drayton.

New elementary Council schools giving accommodation for about 480 children, have recently been completed at Little Drayton for the Shropshire Education Committee, from designs by Mr. George H. Bailey, of Shrewsbury. The buildings, which are of one floor, have been planned with the intention of obtaining the maximum of sunlight and cross-ventilation, windows being arranged on two opposite sides of all classrooms, halls, etc. Access is obtained to each classroom from a verandah connecting the various blocks, with internal communication between the rooms for the convenience of the staff, etc. The whole of the work has been carried out by Mr. H. Dorse, of Cradley Heath, The cost, including drainage, boundary fences, and walls, tar-paving to playgrounds, play-sheds, etc., has been about £6,200.

Extensive Rebuilding in the City of London.

Two of the largest rebuilding operations undertaken in the heart of the City of London for years are now either proceeding or imminent. The one is in King William Street, and involves the corner of Cannon Street up to Nicholas Lane. About one-half of King William Street is in process either of demolition or of rebuilding. The other scheme concerns the important crescent of houses close by at the bottom of Gracechurch Street, facing the King William Statue and the approach to London Bridge, one of the most important sites in London. In neither of these two thoroughfares, says a writer in the "Pall Mall Gazette," is there anything of historical interest that cannot be spared; yet the lover of the City will regret the passing of the calmness and restraint in design that the early nineteenth-century architects were able to lend to their work. King William Street, which is suffering both on its north and south sides, has hitherto suggested, perhaps more than any other City thoroughfare, the Regency period of architecture. Gracechurch Street has, of course, already seen plenty of change. It obtained its present name when it was rebuilt after the Great Fire. Before 1666 it was known as Grasse Street (sometimes Gracious Street), from the parish church of St. Benet, called Grass Church, on account of the ancient herb market close by. It is interesting and not a little curious, to observe how rapidly the public are veering round to a more just appreciation of the once generally abused early nineteenth century architecture.

THE CITY ARCHITECT OF THE FUTURE.

BY O. NEWBOLD.

The qualifications of a City Architect of the future may be enumerated under the following headings: He should be proficient in the broad facts of the professions of Landscape Architecture and Surveying, in the subjects of Civic Engineering and Hygiene, Civic Architecture and Civic Law, and the History of Town Planning.

Taking Landscape Architecture first, we find that it is sub-divisible into the following sections: The planting of streets and the preservation of natural foliage, boulevards and park systems, their design, equipment and planting, and the planning of recreation parks and children's playgrounds.

In Surveying, contouring and the effect of land values on city development.

In Civic Engineering and Hygiene the City Architect should have a good sound knowledge of traffic problems, the broader aspects of road construction, the relative advantages of the various systems of electric, steam, and motor traction; subways and overhead systems; land drainage, public refuse and sewage disposal.

In Civic Architecture and Decoration he must possess expert knowledge on the artistic and æsthetic aspects of the city, the individual and communal character of buildings, picturesque and formal composition, colour and materials, monuments and non-utilitarian furnishings generally, the design of civic and urban centres, open spaces, the different character and functions of streets, and the planning of residential areas.

In Civic Law he should be acquainted with the history of our highways and of the land generally, the Town Planning Act, and all Public Health Acts affecting the construction of new streets, frontages, and rights of light; powers for the acquisition of property compulsorily, by arbitration, and by private treaty; questions of compensation, in addition to Parliamentary procedure in the case of application for improvement schemes.

The History of City Architecture embraces the various types of cities, towns, and villages, their elemental components and their characteristics, the inter-relationship of towns, city organisation, the civic survey, and the sub-division of the city into zones and districts—such as the civic centre, the industrial, commercial, and residential areas, administrative centres, and recreative and educational systems.

These are the broad qualifications of the City Architect of the future.

We conclude with two prophecies—first, that it will not be until we have completely mastered the subjects above enumerated that we shall have an Act of Parliament based on the true conception of City Architecture; and secondly, that until the Legislature affords us such a measure it is improbable that we shall realise the City Practical and Beautiful.

COMPETITIONS.

New Council Offices, Glasgo

It has been decided to hold a comp for the design of new Parish Offices at Glasgow.

Extension of Harris Academy, D

The Dundee School Board have to hold a competition among local tects for the extension of the Academy, Dundee. The estimate of the proposed extension is £28,00

Gourock Town Hall.

Sir John J. Burnet has, in a competition for the Gourock Town awarded first place to Mr. A. N. Pa M.A., F.R.I.B.A., of Glasgow. estimated cost of the building is £8

Southend-on-Sea Housing Sche

In the competition for a Corpo housing scheme at Ruskin Avenue, end-on-Sea, the design submitted Percy G. Hayward, M.S.A., of and Westcliff-on-Sea, has been award first premium; Mr. Percy Brockba Southend, being placed second.

School Board Offices, Paisle

Mr. John Watson, president of the gow Institute of Architects, assessor competition for the adaptation of the Hotel, Paisley, as School Board offic awarded the first place to Mr. Carruthers, I.A., of Glasgow, and th premiums to Mr. William Brown, P and Mr. Matthew Adam, Glasgow.

New Municipal Offices, Stepn

A competition is to be held for pro new municipal buildings at St London, E. Mr. Henry T. F.R.I.B.A., has been appointed as It is proposed to appoint as archite author of the design placed first being in accordance with the R. scale. But should a building contra be signed within twelve months award, the architect is to receive ment an account of £300; and shou scheme be abandoned or indefinitel poned he shall receive a further pa of £300 in full discharge, the drawi become the property of the Council. authors of the designs placed second, and fourth will receive premiums of £75, and £50 respectively.

LIST OF COMPETITIONS C

FEBRUARY 27. — CHILDREN'S SPALDING.—Designs invited by Guar Particulars from H. Stanley Maple, Union Offices, Spalding.

MARCH 31.—STREET PLANNING, FORD.—The Corporation of Bradfo vite competitive designs for th planning of streets in the central a the city. Mr. Reginald Blomfield, will act as assessor. Particulars (returnable) from Frederick Stevens, Clerk, Town Hall, Bradford.

APRIL 30. — GRAMMAR SC LEICESTER. — The Corporation designs for the new Wyggeston Gra School for Boys to be erected on next Regent Road Competition l to architects practising in Lei Premiums, £100, £70, and £50, Ass Mr. George H. Widdows, F.R.I.B.A

ER-HOUSE EQUIPMENT FOR LARGE BUILDINGS.

lealing with the mechanical equip-
of large buildings, whether designed
lustrial or other purposes, it is im-
ve that the most modern arrange-
should be adopted. This applies
articular force to the boiler house,
power for lighting, heating, and ven-
g is produced. And if there is one
in detail of equipment in the boiler
which calls for attention more than
r, it is that of mechanical stoking.
advantages possessed by a mechani-
oker as against the more primitive
d of firing the boilers by hand are
nown. With the latter it is impos-
even when using costly coals of high
, to obtain complete and efficient
stion, and consequent smokeless-
whereas a mechanical stoker ensures
r strong fire and an absolutely
less chimney. This is a point which
ecome of increasing importance,
is satisfactory to know that smoke-
s can be attained, not only with-
ny sacrifice, but with a greatly
ed degree of efficiency and eco-
For example, in hand-firing the
ar air supply, the frequent opening
utting of the furnace doors neces-
the making up and keeping in of
es, together with the indiscriminate
of fuel thrown on to any part of
e, irrespective of requirements, all
induce serious fluctuations in the
e temperature, resulting not only in
ned output of steam, but in the
um of strain, by expansion and
tion, on the boiler plates, whereby
le of the boiler is shortened and
repair or renewal expenses are in-

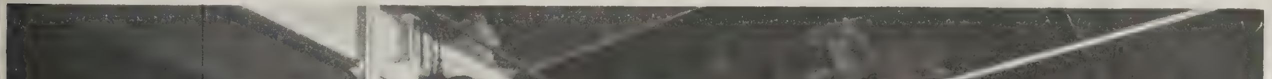
achine-firing these troubles do not occur. The coal is automatically distributed by the mechanical stokers without the opening of the furnace doors, and the distribution is invariably to such parts of the fire as require the fuel. The consequences are that not only is a uniformly high furnace temperature maintained, with a correspondingly increased evaporation, but the boiler plates being subject to a minimum of strain, a great saving in wear and tear is effected, and the boiler life is prolonged.

It may be useful at this point to give a brief description of the apparatus. Mechanical stokers are chiefly of two types, coking and sprinkling, the relative advantages being largely dependent upon the class of fuel to be burnt. The essential difference between the two types is, that in coking stokers the combustion of the volatile hydrocarbons contained in the fuel is effected at a different portion of the grate surface from the combustion of the fixed carbon or coke. Sometimes an independent air supply is provided for the combustion of each portion of the fuel. In coking stokers the fuel is usually fed on to the front of a moving grate, the volatile portion being expelled and burnt near the front, while the fixed portion is burnt during its carriage towards the back of the fire by the movement of the grate surface. The ash is dropped into a chamber behind the grate. The movement of the grate surface may be reciprocating or continuous.

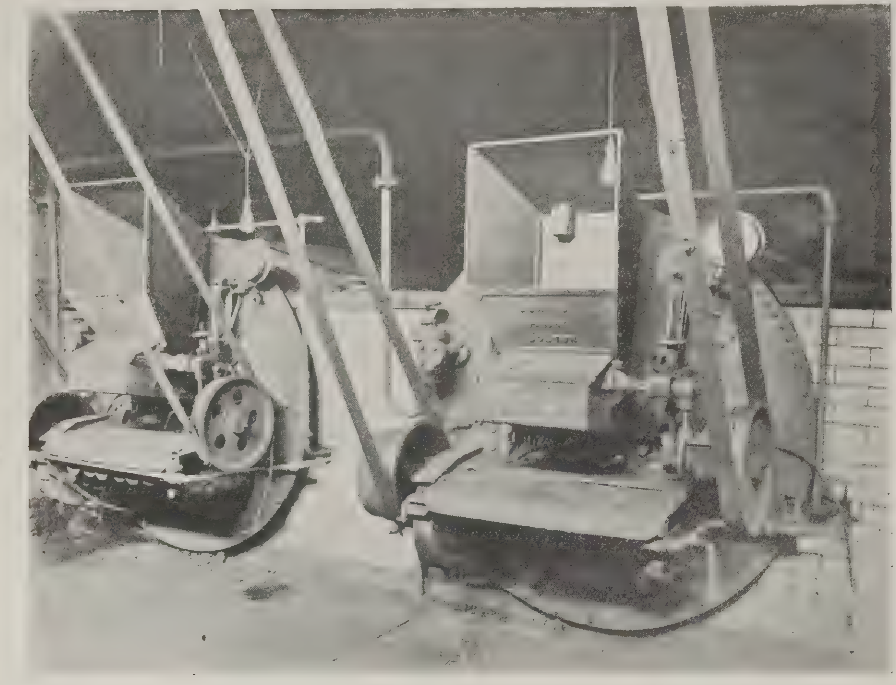
Longitudinal sections of a coking stoker and a sprinkler stoker—both of "Bennis" type—are shown on the next page. In the case of the coking stoker it will be seen that fuel is fed into hoppers, below which are duplicate feed-boxes over the fire door, with reciprocating rams that feed the coal into the furnace intermittently, the fuel being taken on to supplementary coking bars and thence to the main compressed air furnace bars.

The "Bennis" sprinkler stoker has for its prime object the mending of the fire when, where, and as it is required to be mended. It accomplishes the work with closed fire doors, so that high evaporation is equably maintained and damage to the boiler plates by the admission of sudden gusts of cold air is avoided. The mechanism of the sprinkler stoker consists of the grate, firebars, and the shovel arm or sprinkler which feeds four different parts of the fire surface alternately. The coal is delivered into a hopper by means of measuring chutes, where so desired, and is uniformly distributed on to the fire, which is at all times clear and bright, the gases being entirely consumed in the furnace where they are generated. The stoker is capable of burning without smoke low-grade small coal, slack and coke breeze, colliery rubbish, and fuel which it is impossible to hand-fire.

Another type of mechanical stoker is the chain grate stoker. One form of this has a new type of link, which possesses many advantages. In this form each individual link is halved in the width at its point of junction with the succeeding link, the two half-widths together making the thickness at this part of the link equal to that of the remaining portion of the link; the upper surface of the grate, therefore, remains continuous across the junction. The link is grooved depth-wise at regular intervals, the grooves serving to regulate the air space. When all the links constituting the chain are in position, each individual link presents the appearance of a serrated link. Special points claimed by the makers for this type of stoker are: (1) Continuous grate surface; (2) equable distribution of the air at such points of the fire as require it; (3) the provision of more air space



EDLEY'S HYDRO, MATLOCK: VIEW IN BOILER HOUSE SHOWING SPRINKLER STOKERS ON TWO LANCASHIRE BOILERS.



DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL: COKING STOKERS ON TWO CORNISH BOILERS.

without the widening of the *actual* air spaces ; (4) the abolition of the troublesome dumping bar and the substitution of air seals ; (5) such an arrangement of the stoker hoppers that ready access to the tubes is afforded ; (6) the satisfactory combustion of fine slack fuels ; and (7) side air seals which protect the furnace walls.

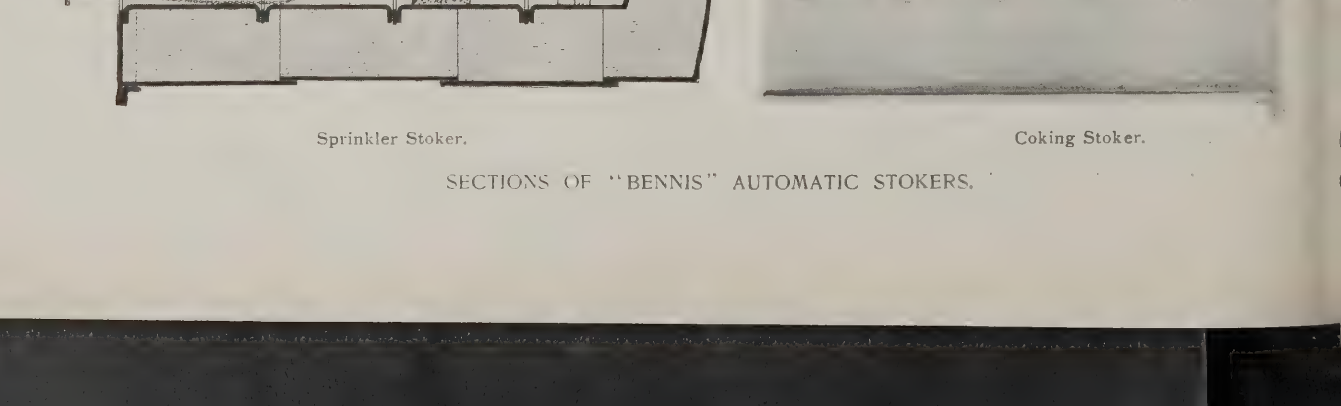
A large number of public institutions have been fitted with one or other of the stoker types mentioned above. At the Alder Hey Hospital, Liverpool, which provides accommodation for 1,000 beds, exclusive of staff (Mr. Charles H. Lancaster, F.S.I., architect), coking stokers are applied to three Lancashire boilers. The grate surface is approximately 38 sq. ft., the coal burnt being ordinary Lancashire slack. A Green's 144-tube economiser is fitted in the main flue. The machinery is designed and arranged to be a condensing plant by supplying hot water to the hospital, and also heating the hospital by means of hot-water radiators on the centralised systems, thus using all the exhaust steam from the electricity station.

Another hospital installation of interest is the "David-Lewis" Northern Hospital, Liverpool (Messrs. Pennington and Son and C. W. Harvey, architects). Here two Cornish boilers are installed, fitted with "Bennis" coking stokers and compressed air furnaces. The coal used is Wigan slack. The chimney at this hospital is about the best in Liverpool from a *smoke* point of view.

At the well-known hydropathic establishment at Matlock, founded by the late John Smedley, sprinkler stokers and "natural draught" furnaces are adopted for the two Lancashire boilers (see illustration on preceding page), and are giving every satisfaction, the wear and tear costs being practically nil.

But perhaps one of the most interesting boiler-house installations is that in the huge building erected by the Royal Liver Friendly Society at the Pierhead, Liverpool (Mr. W. Aubrey Thomas, architect). One of the problems connected with the building was the arrangement of the coal storage. It was, of course, necessary that the capacity of the storage should
ficient for the demands made on it
boilers, and that it should be so s
that its contents could be delivere
facility direct to the boilers. Th
are situated at right angles to the
from which they stand back abou
The four large storage bunkers r
length of the boiler-house (which i
below street level) on the stree
From the bunkers a collecting c
is fitted, and the coal is delivered
end of this into an inclined co
which in its turn delivers into a di
ing conveyor running immediately
the boiler fronts, the whole workir
silently. There are four large
fitted with "Bennis" coking stoke
signed to admit the accurate qua
air necessary to perfect chemical c
tion. The guarantee given with
coking stokers by the makers was th
would obtain, with ordinary Lan
slack at about 6s. 6d., as high a t
efficiency as hand-firing with th
smokeless coal at about 17s. 6d. p
This efficiency was to be obtained
either smoke or grits from the chin
a duty of 5,500 lb. of steam as fr
at 212 deg. Fahr. Owing to th
degree of control which is render
sible in the feed of the coal on to t
nace, the speed of the furnace ba
amount of air forced into the f
almost perfect combustion can be o
through a wide range of dutie
instance, on the dryback boilers it i
possible to burn efficiently from 10
550 lb. of coal per boiler per hour
ther, owing to the ease of the adju
sudden variations of load can be
met. The simplicity of the workin
the running of all gears in oil-tigh
the chilling of the furnace mov
and the interchangeability of all v
parts, reduce the cost of repairs per
to a practically negligible amoun
furnaces at the Royal Liver build
burning under the natural drau
35 lb. of coal per sq. ft. of gr
hour at an efficiency of over 72 p
on the boiler alone.

From the foregoing informati
much of which we are indebted to
Ed. Bennis and Co., of Little I
Bolton—some idea may be gained
machinery and apparatus for secur
automatic firing of boiler furnac
the high degree of efficiency whic
apparatus makes possible will have
clearly apparent.



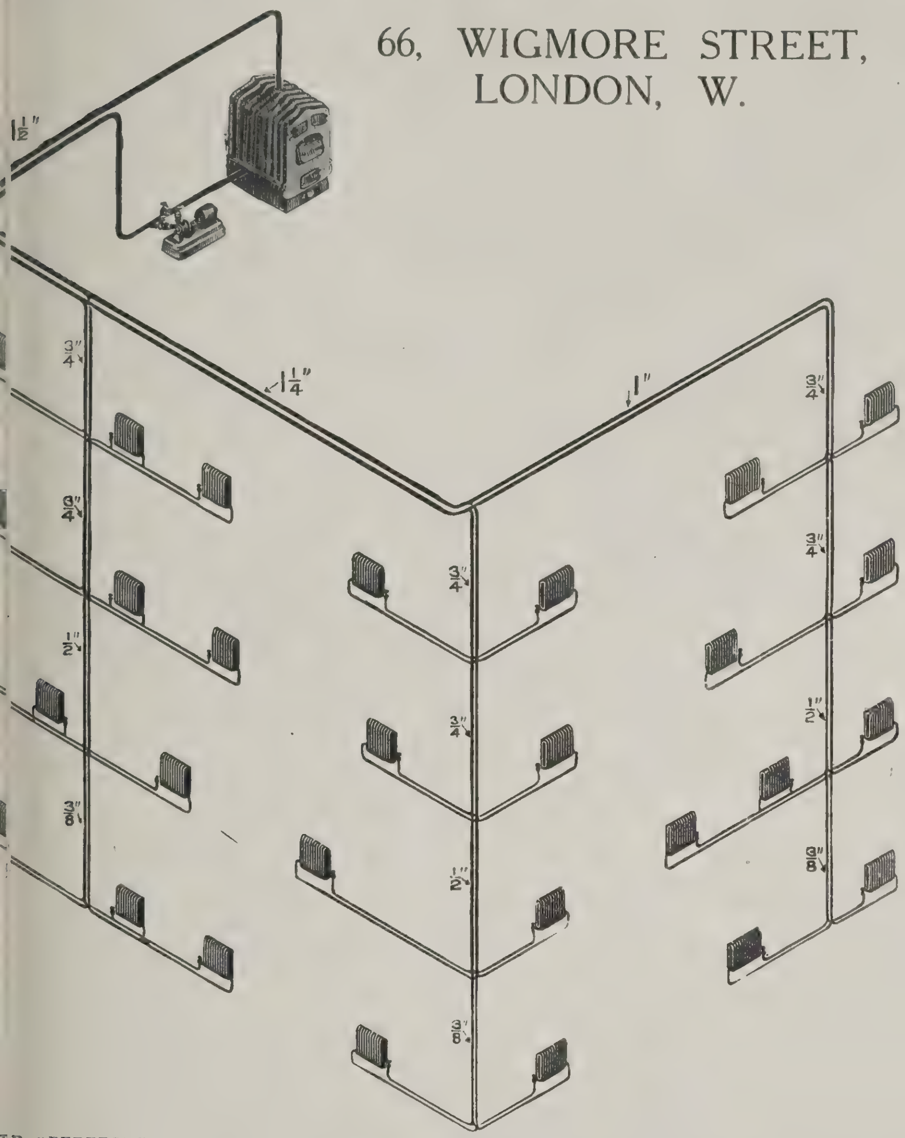
Sprinkler Stoker.

Coking Stoker.

SECTIONS OF "BENNIS" AUTOMATIC STOKERS.

BENHAM & SONS, Ltd.,

66, WIGMORE STREET,
LONDON, W.



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Messrs. A. Marshall Mackenzie & Son., *Architects.*

OFFICES of L.B. and S.C. Rly., London Bridge.
C. L. Morgan, Esq., *Engineer.*

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ALL SAINTS' CHURCH. Goodmayes.
P. K. Allen, Esq., *Architect.*

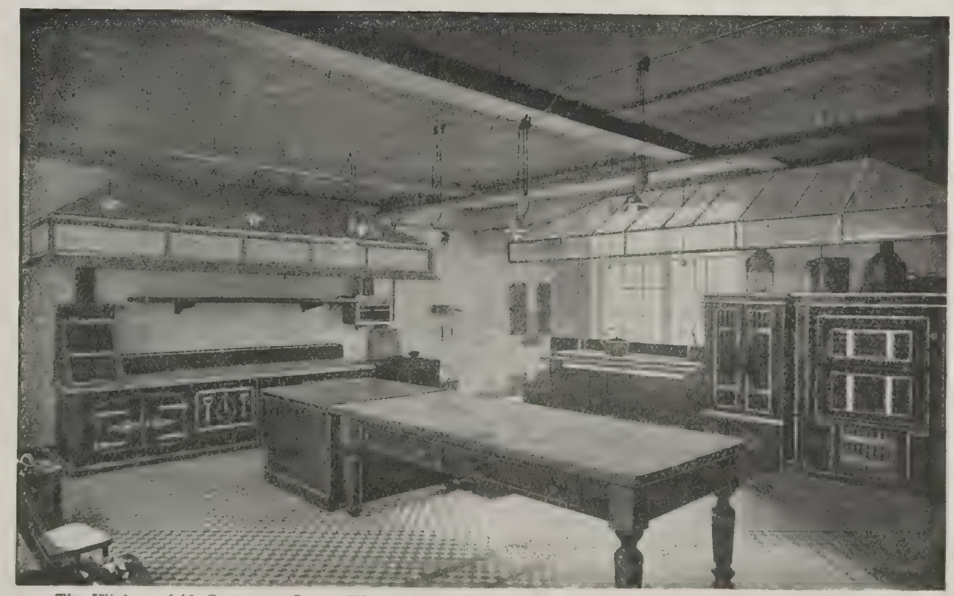
AVINGTON PARK, Alresford, for Sir John Shelley, Bart.
Messrs. Millar & Cox, *Architects.*

NEW HOUSE, Lympne, for Sir Philip Sassoon, Bart.
Messrs. Herbert Baker & Ernest Willmott, *Architects.*

GATEBURTON HALL, Lincs., for J. D. Sandars, Esq.
Messrs. Scorer & Gamble, *Architects,*

Etc., etc.

rs. BENHAM'S Cooking
paratus is all manufactured in
works at Wandsworth, S.W.
claim that each fitting is the
of its kind, and every effort
een made to secure Durability,
Economy, and Efficiency.



The Kitchen of 46, Grosvenor Street, W., showing Coal Range (French pattern), with Charcoal Grill, Plate Rack and Tiled Hood ; Gas Hot Plate with Ovens under, Gas Roasting Oven, Gas Pastry Oven, central Wood Table with Steam Hot Closet at one end : Glazed Hood over Gas Fittings.
Architects, Messrs. Detmar Blow and Fernand Billerey.

NHAM & SONS, Ltd., 66, Wigmore Street, LONDON, W.

LEGAL.

Building Land : Contract Bonds.

Arnold v. Morgan.

February 16. King's Bench Division. Before Justices Rowlatt and Shearman.

This was an appeal by the plaintiff, Thomas Arnold, of the Park, Llanelly, from a decision of Judge Lloyd Morgan in the Llanelly County Court.

Mr. C. Williams appeared for the appellant and Mr. K. Meager for the respondent, Mr. Martin Luther Jones, of Tanyrallt, Gorseinon, Glamorgan.

Mr. Williams said the action in the County Court was by the plaintiff to enforce a contract for the sale of a plot of building land situate at Erw-wen, in the Borough of Loughor, which the defendant agreed to purchase for the sum of £45. A deposit had been paid and the balance the plaintiff sought to recover was £40 4s. Defendant refused to complete on the ground of the plaintiff's non-performance of a certain clause in the contract, and the judge upheld that contention. The contract between the parties was dated March 3, 1913, and the clause in dispute was as follows: "The owner is to construct a carriage road from the main road as shown on the plan and maintain the same in proper condition until handed over to the public authority, the buyer kerbing and channelling the footpath." The county court judge held that the main road referred to in the clause was the road referred to in the estate plan as the main road. The plaintiff had not made and was not in a position to make a proper carriage road, and therefore the County Court Judge found that the condition to be performed by the plaintiff had not been and could not be fulfilled by the plaintiff, and he gave judgment for the defendant with costs. Counsel accepted the finding of the judge that the plan was the estate plan, but he challenged the learned judge's decision on the other point, as it was never intended to make a 24-ft. road.

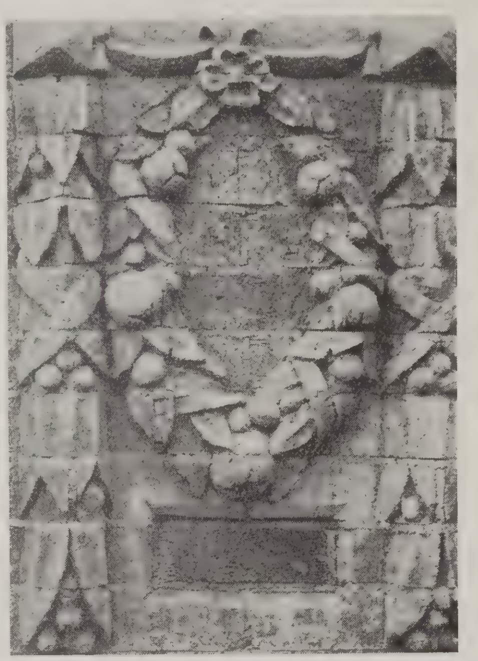
Mr. Justice Rowlatt said in his view the County Court judge was quite right in his view of the contract.

Mr. Justice Shearman concurred, and the appeal was dismissed with costs.

TRADE AND CRAFT.

Carved Brickwork.

That brickwork can be so built as to produce highly artistic effects, Westminster Cathedral and many another noble building bear eloquent testimony; while Georgian houses owe much of the charm of their elevations to string-course, apron and panel. These effects, however, are got simply from variations in the arrangement of bricks of the common oblong shape; and, in buildings of more modern date, bricks are moulded or cut or rubbed to shapes almost innumerable. Messrs. Ravenhead Sanitary Pipe and Brick Co., Ltd., Ravenhead, St. Helens, and Upholland, near Wigan, have gone much further in developing the capacity of brickwork for decoration. They have, in fact, in their "Rus" patent carved brickwork, introduced a new method of artistic expression. A sheet of photographic examples shows more than a dozen different decorative effects obtained by the "Rus" system, and from these it is apparent that architects now have at command a very legitimate and facile means of investing brickwork with sound decorative value. Examples are shown of medallion portraiture, of sculpturesque masks and heads, of coats-of-arms, of balustrading, and of decorative details that gain strength, beauty, and naturalness by forming an integral or organic part of the wall into which they are built. Vigour and spirit in the design spring not merely from this circumstance, nor from the natural texture of the brickwork (this feature, by the way, being an additional charm of considerable interest), but mainly from the fact that each design is a piece of genuine hand-carving. No moulds or patterns are used, and consequently there are no fine lines or smooth surfaces, but there is in every sample an individuality and a human interest that invest the product with artistic value. Architects' own designs can be faithfully reproduced, and it is stated that "the cost is exceedingly moderate." Full illustrated particulars will be sent on application to the firm at St. Helens, and inquiries on any points relating to this system will be gladly answered by its inventors.



CARVED BRICK PANEL ON PICTURE THEATRE, MANCHESTER.
P. CUMMINGS, ARCHITECT.

Woodwork, Plywood, and Roofing Materials.

With a copy of their comprehensive catalogue, Messrs. C. Jennings and Co., general woodworkers, timber importers, etc., whose head office is at Pennywell Road, Bristol, forward samples of several of the specialities that are listed. These include their compo-rubber roofing material, which is of excellent quality, and should be found specially serviceable for roofing or lining military huts, etc.; of the "Neponset" wall and ceiling board, which is sent out ready decorated, with plain oak, cream-white, or burnt-leather finish, but can be painted any colour or varnished when necessary, and is supplied in sheets of various convenient sizes; and of ash and oak plywood, of which the boards enclosing the composition are not mere veneer, but thick hardwood of superior finish, and it appears to be an effective material for lining the interiors of huts or other wood-framed buildings. Other kinds of wood—alder, birch, etc.—are employed in the same way. Messrs. Jennings's catalogue comprises 282 pages, in which all kinds of joinery an work generally are illustrated. W stand that the firm are willing this decidedly useful catalogue, with an excellent four-fold brass rule, of which we are in receipt of men, in return for 1s. 6d.

Messrs. Harris and Sheldon,

In the report of the directors for ending December 31, it is stated considerable number of employees well-known Birmingham firm of sh designers, etc., have joined His M Forces, and that, in the case of th who had dependants, the firm will ment the Army pay. A net bal £8,961 odd on the year's trading cluding £3,251 odd brought forwa 1913) remained after making all visions, and a dividend of 5 per cen year was recommended. The annual meeting was called for Mon February 22.

PROJECTED NEW W

Telephone Exchange, Woolw

A new telephone exchange is to structed at Woolwich.

New Infirmary, Derby.

Derby Guardians are conside erection of a new infirmary at an e cost of £35,000.

Hospital, Bexhill.

Bexhill Town Council propose t £6,500 for the erection of new hospital buildings at Clinch Gree

Housing Scheme, Dartfor

Dartford Urban District Cou applying to the Local Governme for sanction to borrow £7,51 housing scheme.

Erection of Working-class Dw

The Local Government Board an inquiry into an application Tamworth Town Council for borrow £15,000 for the erection of class dwellings.

Houses, Govan.

The Glasgow Corporation hav consideration a scheme, prepared A. B. McDonald, the master of w building 100 cottages on Corporat at Greenhead, Govan. The estim of the work is £28,770.

New Buildings, Aberdeen

The Plans Committee of the Town Council has approved of th ing plans: Petrol store, Magdal for Mr. Robert Coulter, dairyman A. H. L. Mackinnon, architect; al in connection with premises at Brae, for the North of Scotland Loan Co., Ltd., per Mr. Geor architect; alterations in connect the Albert Sawmills, Baltic Place, Fleming and Co., Ltd., per Messr and Watt, architects; conversion police-station and tramway shelt former sub-fire station at Mile the Town Council, per Mr. Jo architect; alterations in connect the premises No. 81, Union Street F. Cartwright, cabinet-maker, George Watt, architect; premise south side of Fraser Place, for M Scullion, gut merchant; altera connection with premises on the n of Commercial Road, for the Steam Trawl Fishing Co., Ltd., G. Bennett Mitchell, architect.

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 3, 1915. Volume XLI. No. 1052.

No. 125.

(*From Piranesi.*)

THE ARCHITECTS' &
BUILDERS' JOURNAL.

MARCH 3, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1052

EDITORIAL.

YET another London statue is to be moved on. Lloyds having offered to present the London County Council with Gibson's statue of the Right Hon. William Huskisson, the Local Government Records and Museums Committee recommended acceptance, and proposed to place the statue in Pimlico Garden, Grosvenor Road. When such matters come up for discussion, things are sometimes said that must make the donors wish they had not made the offer. No very outrageous observations were made in the debate by the Council, except, perhaps, the genial comment of the member who said "verdure was so scarce in London that he hoped the time would come when anyone proposing to sacrifice a scrap of it for the sake of sculpture would promptly be hanged." No doubt Lloyds will console themselves with the remembrance that such graceful expressions of gratitude can be always construed in the Pickwickian sense.

* * * *

More humane than the nature-study enthusiast was the gentleman who suggested that the statue should be given "decent shelter" in the County Hall; but his recommendation that "the Council should go to the Paris Salon if they wanted statuary for open spaces" was received rather coldly—probably on puritanical rather than on patriotic grounds, as it was no doubt felt that unadorned spaces, "in verdure clad," must be infinitely more correct for Pimlico than Salon figures, clad, they could not distinctly remember how, but whose importation into this climate might strengthen the hands of the extreme-penalty advocate. As to the matter of propriety, we do not understand why this gift was offered to the London County Council, nor why the Council should put a marble statue out of doors, unless they want to destroy it. A statue by John Gibson is worth house-room, and should be cherished with solicitude.

* * * *

One's sympathies go out to the member who protested on general principles against the placing of statues in London's open spaces. Bad pictures in art galleries, he said, need not be looked at, but people walking or sitting in the parks could not avoid looking at the statues. He also questioned the desirability of erecting a statue to one who had little connection with London beyond being a Cabinet Minister; but surely this objection would rule out Mr. Gladstone, and nine-tenths of the other national heroes, and would, besides, involve acceptance of that absurdly parochial view of London which both the Council and the Corporation seem anxious to impose upon us. William Huskisson, indeed, was a greater statesman than the worthy councillors seem to realise. He was the ablest financier of his time, introduced a new sinking fund, and in 1823 was appointed President of the Board of Trade and Treasurer of the Navy. It was he who reformed the
Navigation Acts and repealed the quarantine
His tragic end—on September 15, 1830, he was
by a locomotive at the opening of the Liverpo
Manchester Railway—perhaps rather tends to o
the less sensational facts of a career of distincti
certainly merited a monument.

* * * *

John Gibson, who made also a fine monument
Huskisson, which is in Winchester Cathedral, w
only a tall man of his hands, but, by precept as
example, brought fresh strength and impetus
classical movement which his older contem
Flaxman had inspired with the breath of life
country. In his own opinion, his finest work
round is his group of Queen Victoria suppor
Justice and Clemency, in the Palace of Westm
but he was best seen in basso-rilievo, in which
unexcelled by any English sculptor; his tw
examples in this kind being his "Hours Leadi
Horses of the Sun," and "Phæthon Drivi
Chariot of the Sun." Although he was steeped
Greek spirit—thanks largely to the guidance
Roscoe, whose fine taste in Greek art is said t
exceeded the strength of his judgment in
history—Gibson had for his chief character
power of passionate expression which his Greek
did not repress, but touched to fine issues. It h
said of him that he made the heathen mytho
religion, and that in serenity of nature, feeling
beautiful, and a certain philosophy of mind,
be accepted as a type of what a pure-minded
pagan, in the zenith of Greek art, may have
Nevertheless, this obsession, if one chooses t
that, had no other effect upon his native vig
individuality than to develop and express t
accordance with the fundamental principles
once for all the Greeks made manifest. In ch
Gibson was nearly lost to England, and per
art, when his father proposed to take the fa
America. Fortunately they got no farthe
Liverpool, where, as we have already recalled,
came under the influence of Roscoe, which
Gibson a Greek.

* * * *

It was for the art-loving Roscoe that he e
the relief in terra-cotta that, as well as a ca
"The Fall of the Angels," is now in the L
Museum; and it is said that several speci
Gibson's work, done while he was an apprent
mason or sculptor named Francis, and still exta
Liverpool district, are commonly attributed to
In any notice of Gibson, it is inevitable to reca
was he who reintroduced colour in statuary, his
Venus" giving rise to a controversy that
occasionally revived. If only as a specimen of
work, the statue of Huskisson should be trea

er respect than the London County Council seem
sed to accord it; and we are not sure that, all
s considered, and seeing that Huskisson, when, in
he entered the Cabinet, was member for Liver-
that art-loving city would not be a more
priate home for it than ungrateful London.

* * * *

etter appearing in the Correspondence columns of
esent issue reiterates what we have grown almost
of repeating—namely, that those corporations
usiness and private owners who suppose that
will go down after the war is over, and that it is
ore prudent to postpone building schemes, are
ing a strange delusion. As our correspondent
s, and as we have repeatedly said ourselves, there
ery reason to anticipate that when peace is in
prices all round will reach a much higher level
they have yet attained. As our correspondent
s out, much material will be required for
lding and reparation in France, Belgium,
d, and elsewhere, and the abnormal demand will
extraordinary prices. Capital as well as
ials will be diverted from normal channels, and
y will be dear to borrow, while a prospective
ase in the cost of living is shadowed by
ective labour troubles. On this showing, to
one building is to hazard serious future loss and
venience. "Never prophesy unless you know"
e occasionally a counsel of wisdom; but it does
eclude hypothetical reasoning based on observa-
nd experience of known tendencies; and there-
ve feel justified in reiterating our conviction that
tter opportunity for building at fairly normal rates
ly to present itself within the next decade. That
s the time to build is, in our view, sound advice
should receive all possible currency.

* * * *

a paper read before the Society of Architects by
. Alban H. Scott, we note the bold proposal that
uld be compulsory to construct all external walls,
ll internal partitions and floors, of fire-resisting
ials. In effect, we have often said the same thing;
r. Scott has the advantage of saying it at a
arly opportune moment, when, timber being at a
um, the comparison between wood-work and fire-
ng materials shows a relative difference in total
hat is now insignificant, and, in the case of
ons, is merely nominal. Taking into account the
insurance rates following its adoption, the
arison is, in the long run, strongly favour-
to fire-resisting construction; for the lower
ums denote a saving that very soon covers
difference in the first cost of construction,
ereafter runs on like steady interest on a sound
ment. This is an argument that should carry
lerable weight with many of those who urge the
ess of timber as an argument against building.
ilding large premises on fire-resisting principles
et, for little more than the initial cost of ordinary
uction, not only a better and safer building, but
at, as we have seen, remunerates the outlay.

* * * *

the recommendation of its Science Standing
ittee, the Council of the Royal Institute lodged a
n in Parliament against the London County
il (General Powers) (No. 2) Bill, of which
III. and IV. relate respectively to the drainage
mises and to buildings on low-lying land. In the
n it was submitted that existing Acts are
ent to secure the proper and efficient drainage of
ngs; that the new proposals were unworkable;
many cases the abolition of basements might
an entire building useless for the trade or busi-
for which it was constructed; and that the
sed compensation to owners went no further than
st of the work, there being no provision for adequate compensation for depreciation of property consequent on the work. With respect to buildings on low-lying land, it was pointed out that the result of the Council's proposals would be that no building, however small—not even a coal-shed—could be erected within the low-lying area without the delay attending formal application to the Council. Several minor objections were stated, and it was contended that the effect of the proposed new regulations would be greatly to "interfere with the reasonable development of property and unduly hamper building operations, to the prejudice of the members of your petitioners' Institute." There were twenty-seven petitions against these parts of the Bill, and, at last week's meeting, the London County Council decided to drop the proposals, which were undoubtedly much too drastic, involving consequences which presumably the Council had not foreseen. In pointing them out so clearly the Institute has effectually fulfilled one of the public duties created for it by the Act of 1894, which requires that notice shall be given to it of all by-laws proposed by the Council. It is a pity, however, that the machinery of protest should be so cumbersome and costly.

* * * *

In commenting on this subject a few weeks ago, we remarked on the desirability of having cellars to dwelling-houses wherever practicable, and we are glad to have received from a well-known architect a note heartily commending that view. He would, he says, have a cellar to every house, and to the full extent of the ground area, as it makes the house healthy by keeping it dry and well ventilated. "Makes the house healthy" may be read quite literally, even without the complement, "to live in"; for who that has seen the ravages of dry rot, the decay of brickwork and plaster, and other evils consequent on dampness and stagnant air, will deny that houses are themselves subject to disease? Indeed, we seem to remember the contention of a Scottish chemist that stone and the metals are attacked and consumed by specific microbes. Whether or not there is any truth in this rather tough bacteriological theory, we are in entire agreement with our friend as to the hygienic effect of cellars, both on the house itself and on the inhabitants thereof. But in saying this we are by no means confusing cellars with basements, nor basements with the underground rooms of business premises. With the basements of dwellings we would willingly dispense. They make unhealthy living-rooms, and it takes a good deal of vigilance to prevent their use as bedrooms; but that underground chambers—vaults, and the like—used mainly for storage, are almost indispensable to certain businesses the Institute's contention is not to be denied, and there is as little doubt that to harass their owners in the manner proposed by the London County Council would have been at least as much in restraint of trade as the equally vexatious prohibitions with respect to low-lying land.

* * * *

The problem of whether what remained of Reims Cathedral was worth restoring seems to have been settled out of hand by the Germans, who were reported, in a *communiqué* issued from Paris on Tuesday in last week, to have reduced the fabric to utter ruin by further bombardments. The town was bombarded twice with extreme violence, the first bombardment lasting six hours and the second five hours. It is declared that the ruins were specially picked out for attention, and that the destruction was wanton and deliberate, serving no military purpose. It is added that the interior is now almost completely destroyed. This gratuitous outrage is the answer of the Germans to the protests of the civilised world. It is precisely the kind of reply that might have been expected from the Germans, as they stand self-revealed, destitute of moral sense and glorying in brutality.

THE PLATES.

Château de Meudon.

IN this design from Krafft, shown in the double-page plate, the severe restraint of the building seemed to demand the relief afforded by the vigorous and vitalising figures in the panels and pediment. In the bas-relief of the curiously designated "jeux d'enfants" the rather pronounced Renaissance spirit is much less in keeping with the building than that of the more nearly classical "danseuses."

Chimneypiece Head in Amsterdam.

Clearly this refined design is not of Dutch origin. Composition and execution alike betray the agile mind and deft hand of some Frenchman, who was probably enticed into Holland, as in all probability the father of Grinling Gibbons was, and perhaps at the same period.

Design for a Town Residence for Two Artists.

It will be remembered that for the R.I.B.A. Final design, here illustrated, Mr. Patrick Abercrombie, M.A., of the Liverpool University School of Architecture, was awarded special distinction. His version of the subject, the hon. examiners state in their report, was presented "in a manner showing scholarship and regard for the conditions of modern domestic architecture for towns; and it will be seen how closely formal planning and utilitarian needs are allied. In this design there is apparent something of the spirit which animated the work of the French designers of the early nineteenth century, a delightful and imaginative freedom in the handling of the interior arrangements which is reminiscent of the famous examples in the new suburbs of Paris and of the works set forth in Krafft's publications. Yet the whole scheme cannot be traced to a particular motif. It is a blend of the French spirit of the period with the English tradition. The examiners also cannot praise too highly the spirit of adapti displayed in this design, which shows the val French influence in planning."

Carvings in St. Hilda's Church, Sherburn, Y

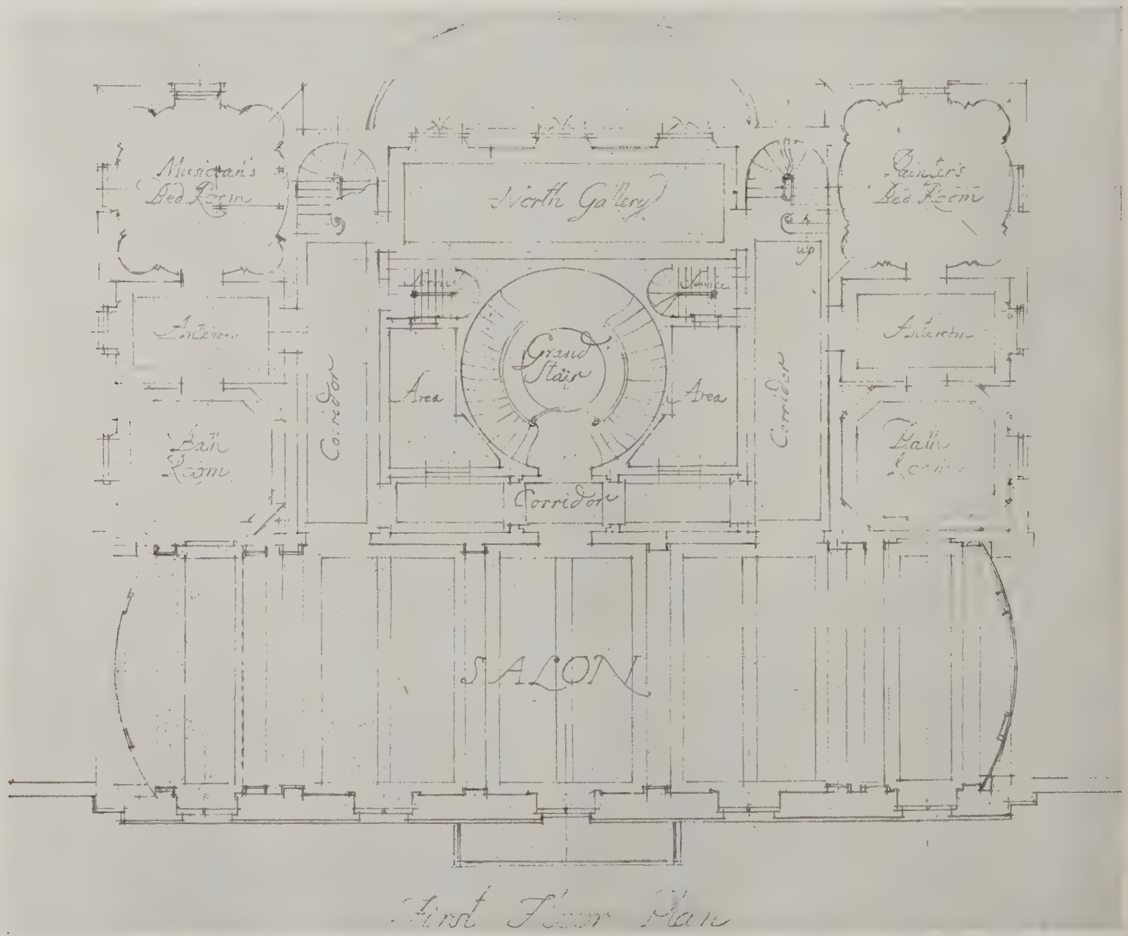
These two plates show a fairly representative tion from the carving that has been executed Hilda's, Sherburn, from the designs and unde supervision of the architect, Mr. Walter H. Br F.S.A., F.R.I.B.A., by Messrs. George W. Milbur Son, sculptors, Bootham Bar, Yorks. With resp the four figures of female saints from the font co should be mentioned that, the cover being octag plan, the other four niches are filled by figures four Evangelists. Slender shafts rising betwee niches are terminated by small figures of angels h shields. All the woodwork in the church is o darkened somewhat, and dull-polished.

Suchet Monument in Père Lachaise, Paris.

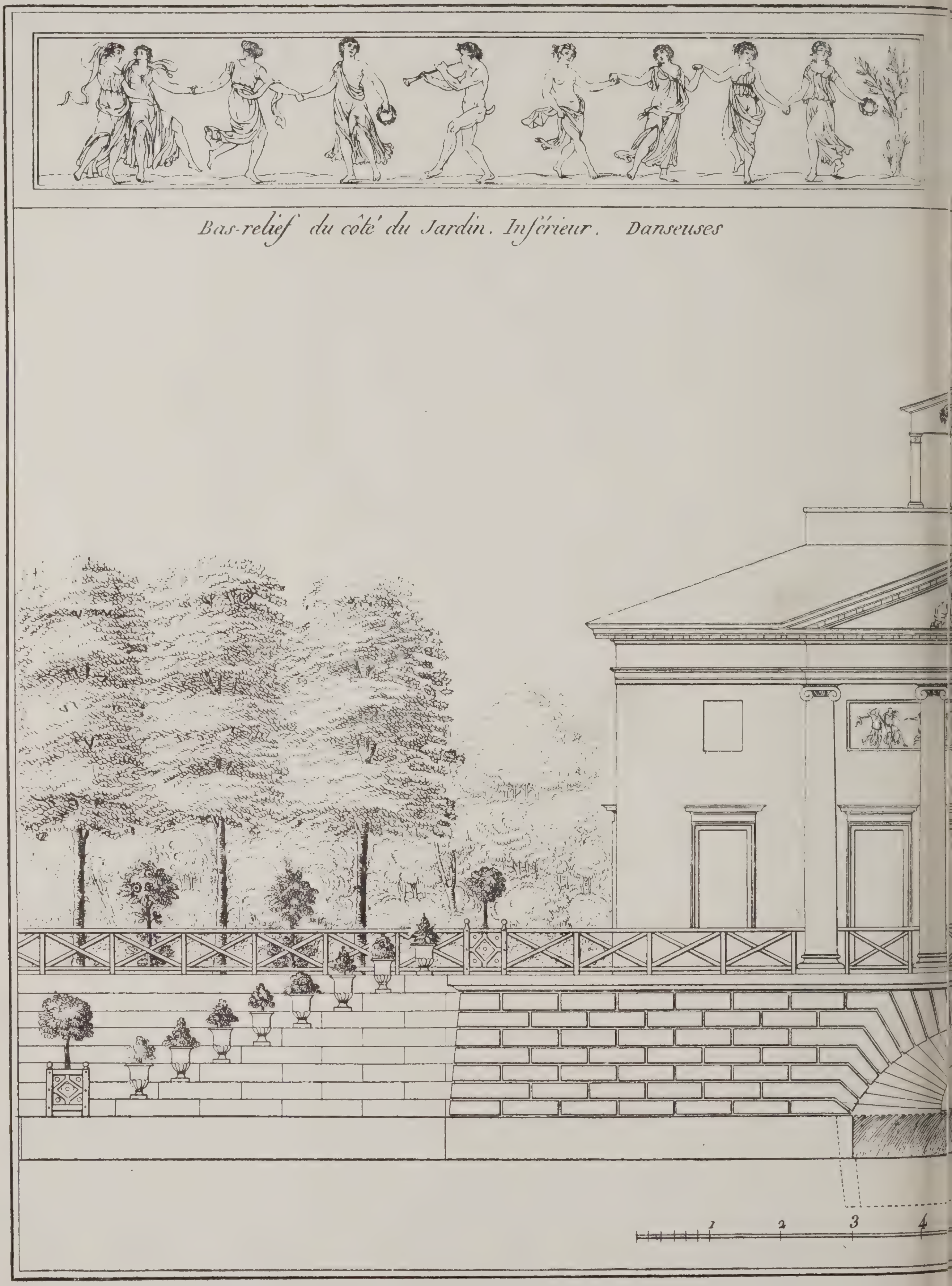
This monument was erected to Marshal Suchet Cemetery of Père Lachaise. It is quadrangula about 25 ft. high by 8 ft. wide. The sub-basem of granite, the rest of a single block of white m On the main face the Muse of History traces on a of cannon the names of the places where the achieved glory. The bust above is treated v laurel garland fixed to two reversed torches. I tympanum of the front is placed in the middle the of the Legion of Honour, and other orders gain Suchet are on the other sides.

Drawings of Roman Ornament.

Theser friezes, the one from the Villa Albani, a other from the Villa Medicis, both in Rome, call comment, except, perhaps, that they are thoroughly typical of the strength bordering on c ness, and of the grim and grotesque exuberan fancy, that make Roman art so curiously interes study.

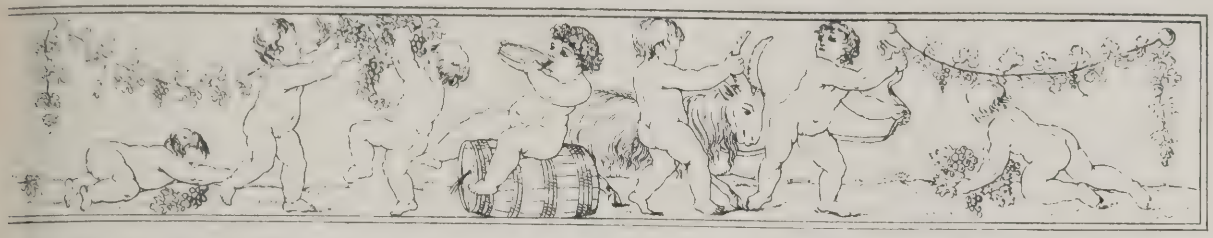


DESIGN FOR A TOWN RESIDENCE FOR TWO ARTISTS. PATRICK ABERCROMBIE, M.A., ARCHITECT.

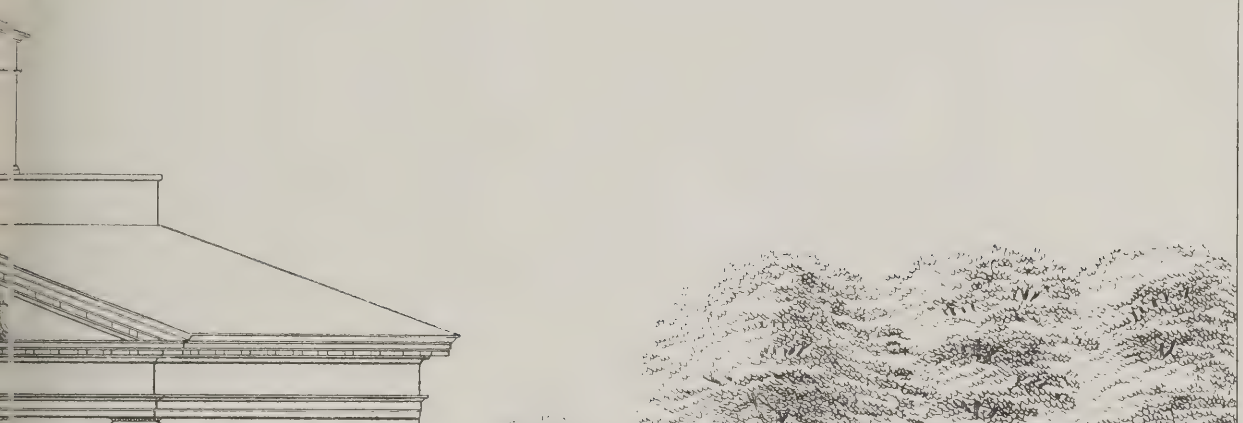


DESIGNS FROM KRAFF

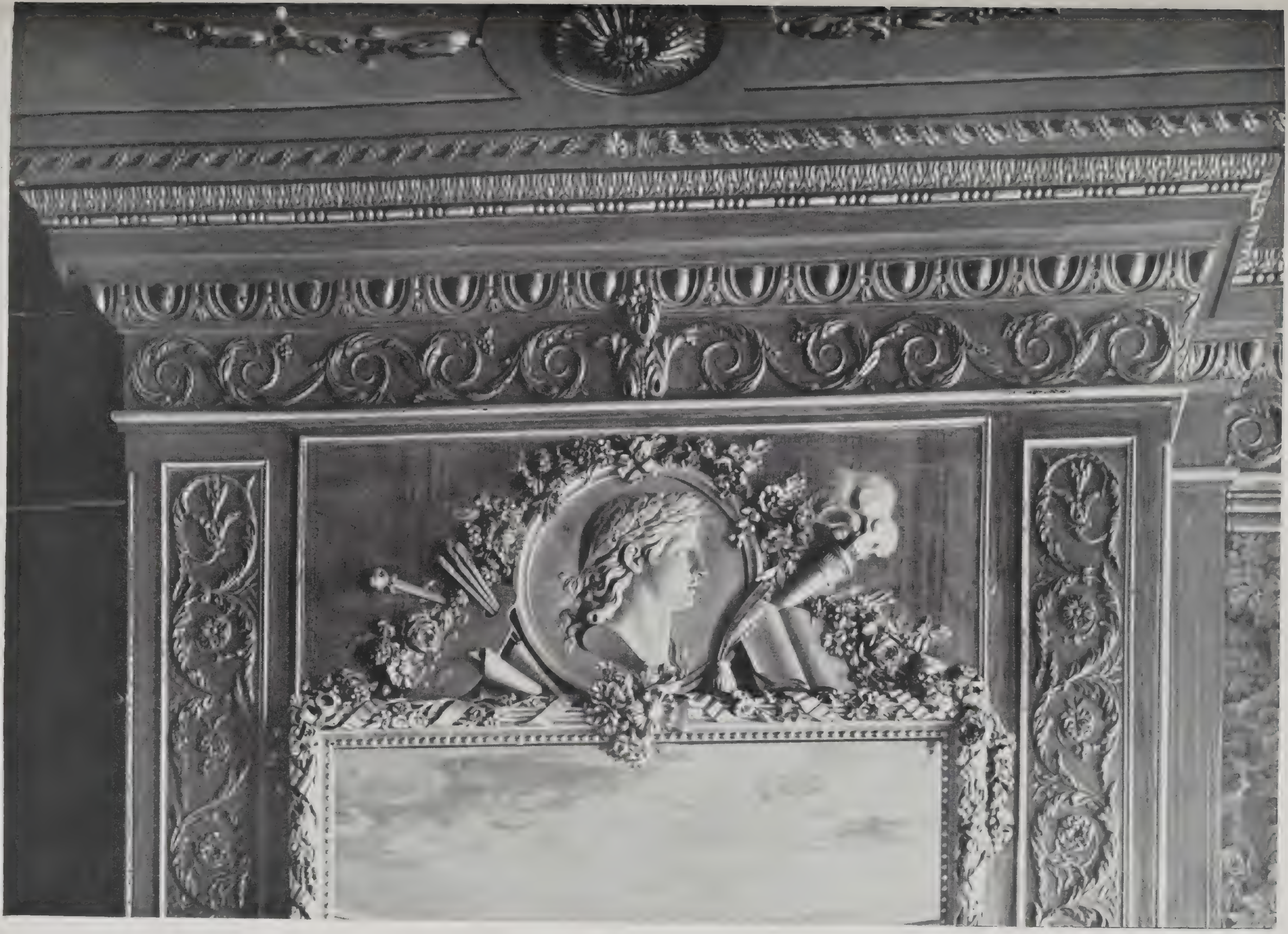
MAND.



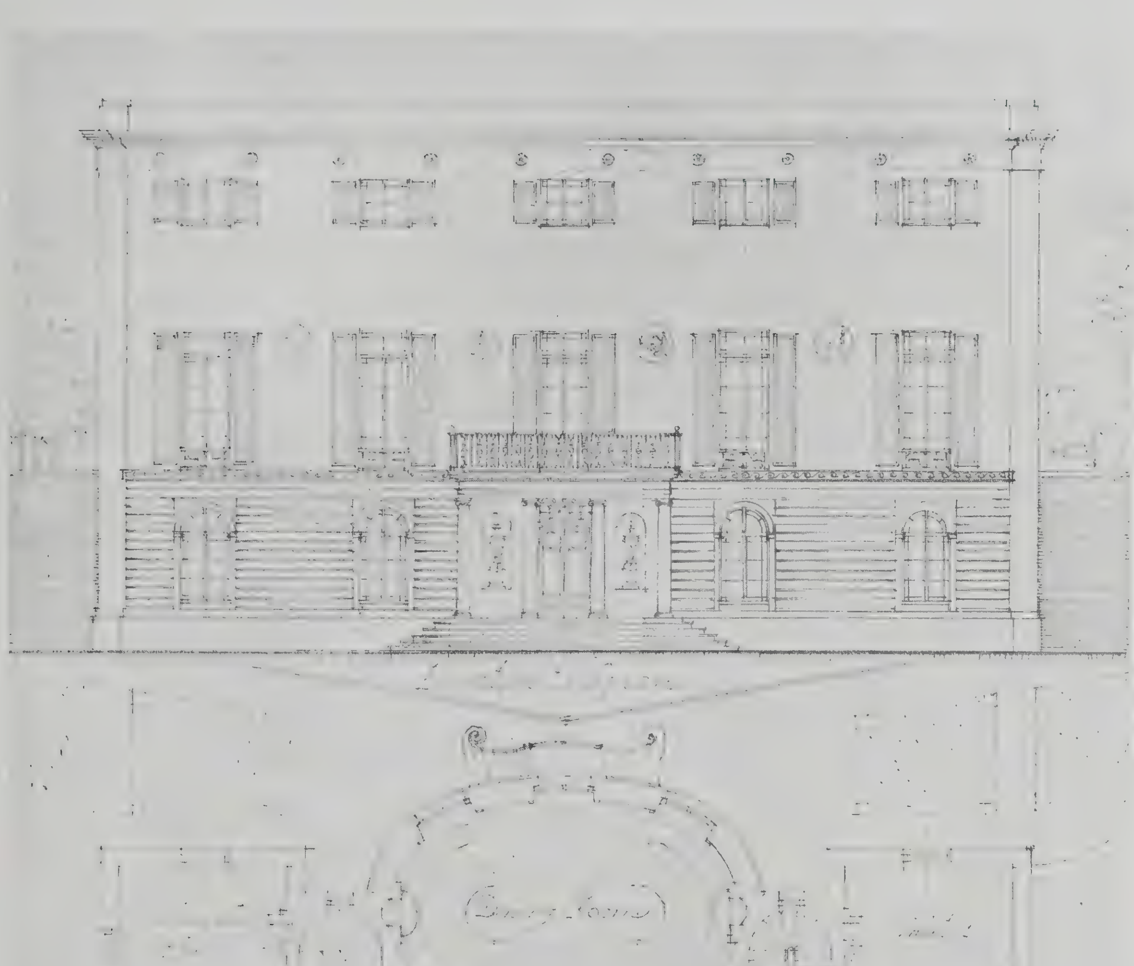
Bas-relief du côté du Jardin Supérieur. Jeux d'Enfants.



AU DE MEUDON.



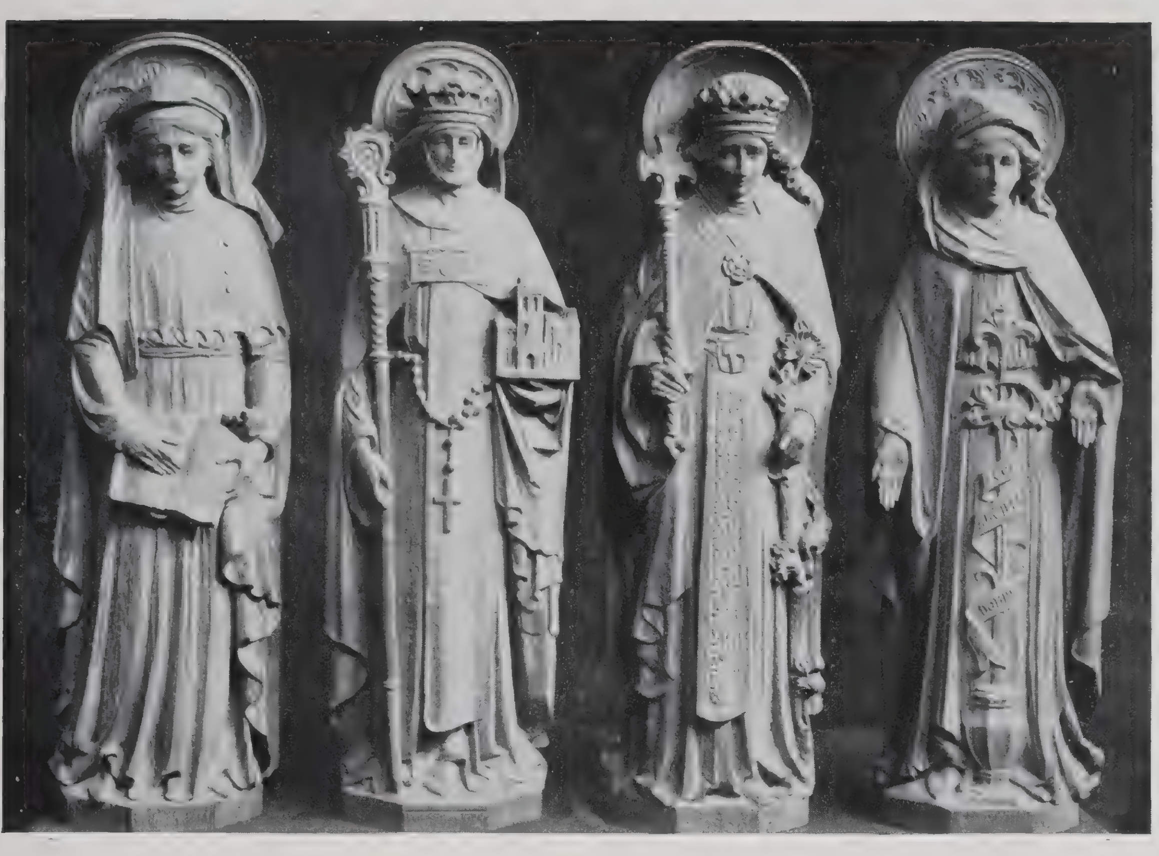
DETAILS OF CRAFTSMANSHIP. VIII.—UPPER PART OF CHIMNEYPIECE IN HOUSE ON THE HEERENGRACHT, AMSTERDAM.



MODERN DOMESTIC ARCHITECTURE (SERIES II). IV.—DESIGN FOR A TOWN RESIDENCE FOR TWO ARTISTS.

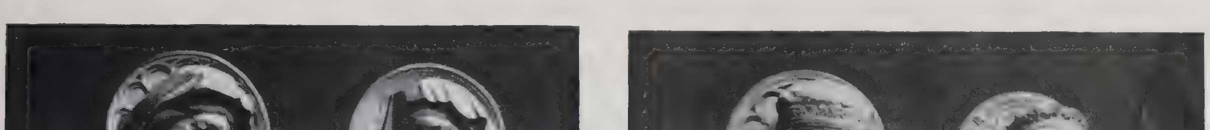
PATRICK ABERCROMBIE, M.A., ARCHITECT.

LIBRARY
OF THE
UNIVERSITY OF [illegible]



St. Anne. St. Hilda. St. Ethelreda. Virgin Mary (Annunciation).

Figures from Font Cover.

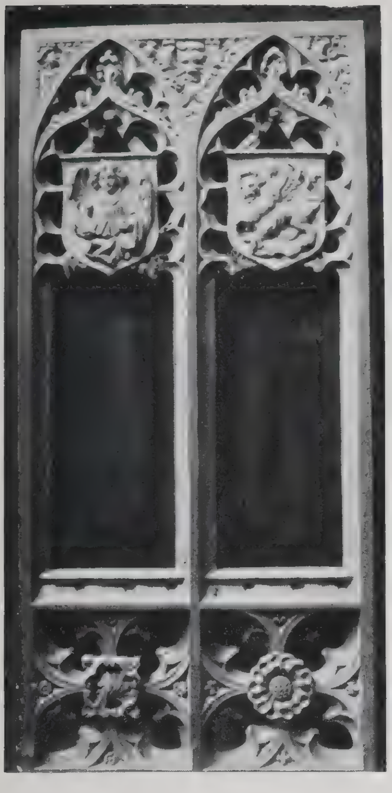


St. Anne. Mary Magdalene. St. Hilda. Virgin Mary ("Mater Dolorosa").

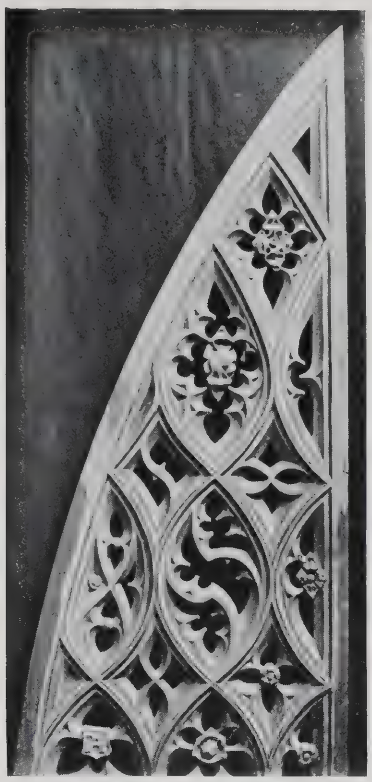
Figures from Front of Altar Table.

CURRENT ARCHITECTURE (SERIES II.). X.—CARVINGS IN ST. HILDA'S CHURCH, SHERBURN, YORKS.

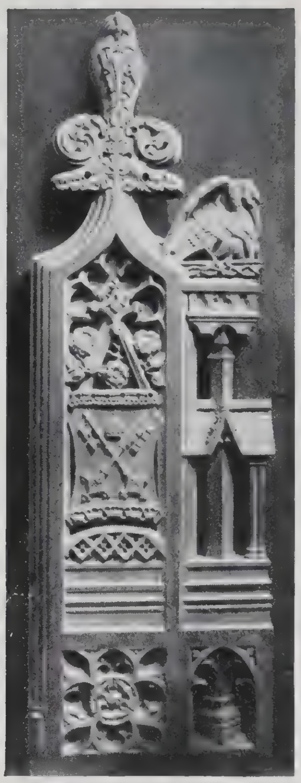
WALTER H. BRIERLEY, F.S.A., F.R.I.B.A., ARCHITECT.



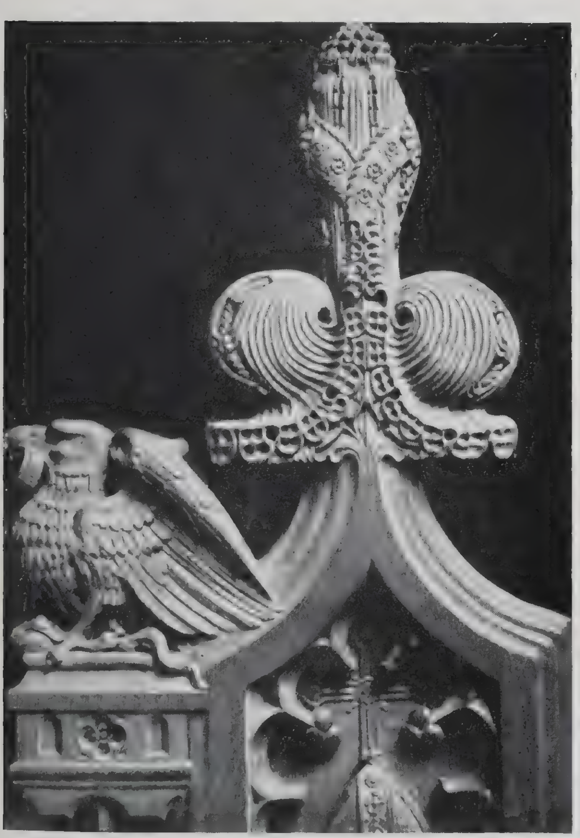
Detail of Tracery Panel from Pulpit.



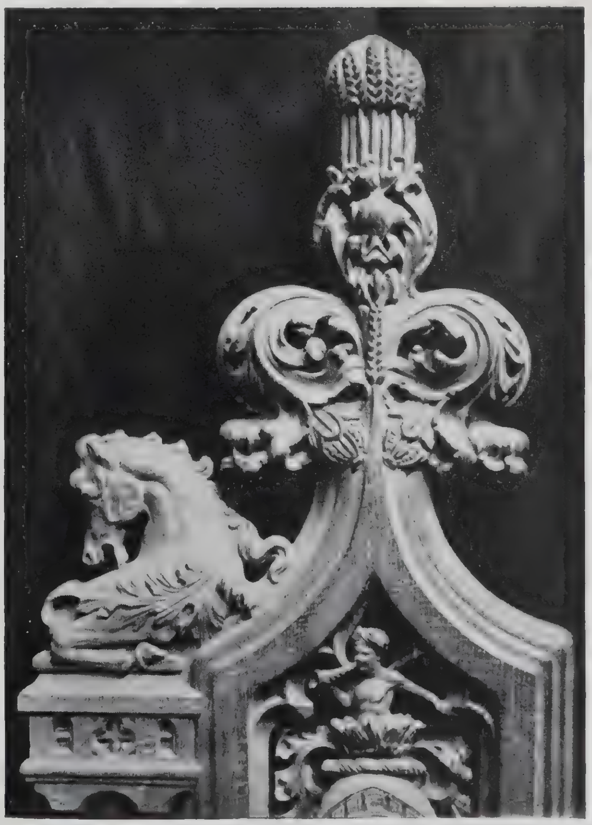
Detail of Tracery Spandrel of Organ Case.



Seat End in Chancel.
(Arms of Dean and Chapter of York).



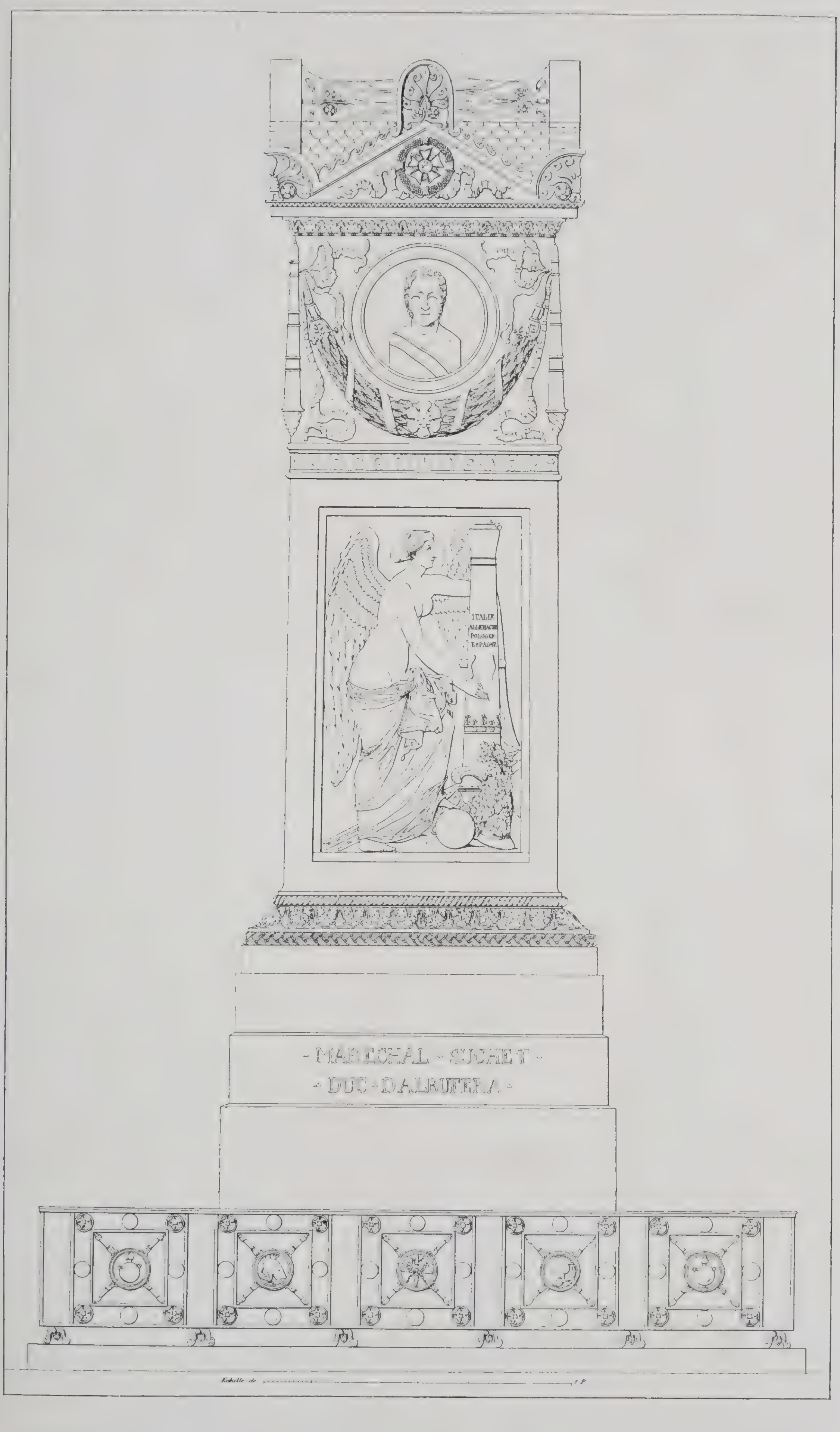
Bench End in Chancel.



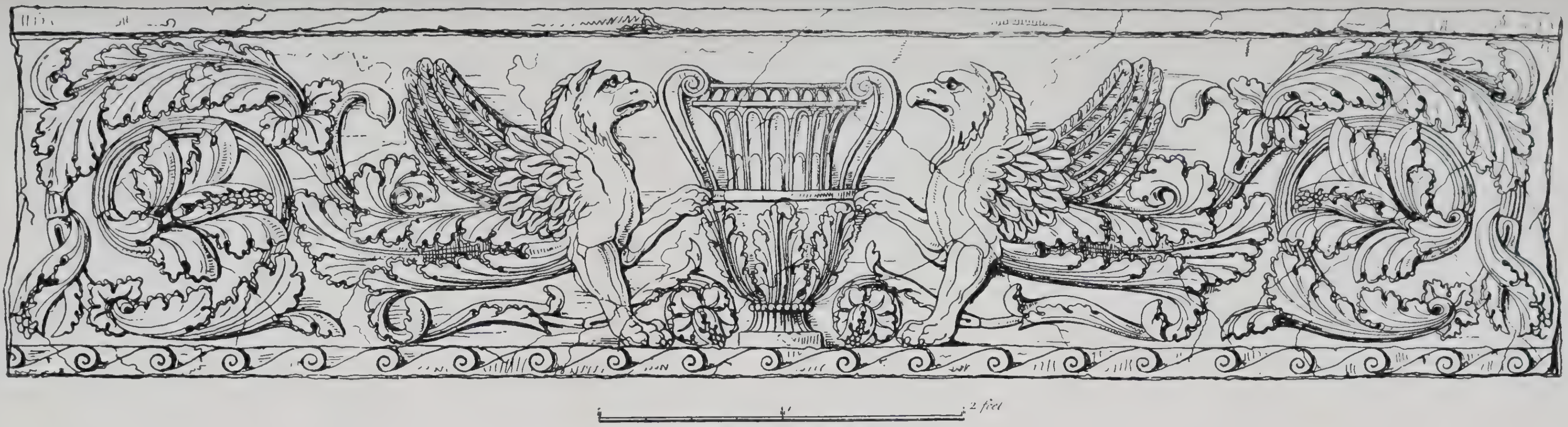
Bench End in Chancel
(with Arms of the late Sir Tatton Sykes, Bart.)

CURRENT ARCHITECTURE (SERIES II.). XI.—CARVINGS IN ST. HILDA'S CHURCH, SHERBURN, YORKS.

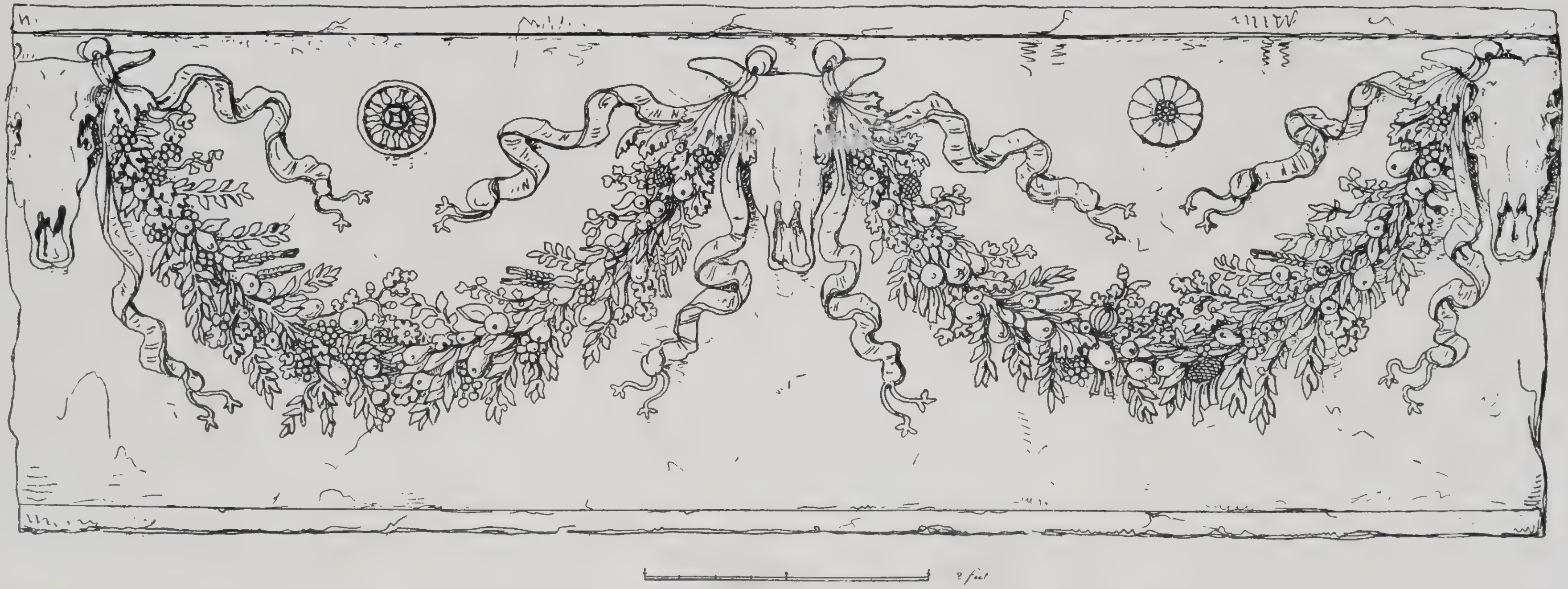
WALTER H. BRIERLEY, F.S.A., F.R.I.B.A., ARCHITECT.



FRENCH MONUMENTS. VI.—SUCHET MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.



Detail of Marble Frieze from Villa Albani, Rome.



Detail of Marble Frieze from Villa Medicis, Rome.

DRAWINGS OF ROMAN ORNAMENT.—III.

CORRESPONDENCE.

*itors disclaim all responsibility for the statements made or opinions
d by correspondents, who are asked to be brief, and to write on one side
the paper. Every communication must bear the name and address of
the sender.*

Suburban By-laws.

e Editors of THE ARCHITECTS' AND BUILDERS'
JOURNAL.

RS,—It is very gratifying to note by the article
our current issue that the London Society are
ring a scheme for the development of the
irts of London in a methodical and scientific
ier.

nakes one mourn for the neglect of the past and
olossal muddle that has come into being in the
bs owing to lack of enterprise of this kind.

s never too late to mend, however, and I should
o submit that there are still many spaces left in
ated areas to develop, and in some cases this is in
ands of public-spirited owners who desire to
rve the natural amenities. Now, these good
ions should be encouraged, for many improve-
s may be made when a space in any of these
is being planned, such as grass courts with
ps a fountain in the centre, and roads with grass
gs. But these things are not being encouraged.
e contrary, they are discouraged.

now of a case in point, where a firm of builders in
orough of Hornsey have many times applied to
ocal Authority to approve their scheme for
g up the roads on their new estate (which are, of
, private residential roads) with good wide grass
gs on either side of a 20-ft.-wide carriage-way.
eply of the authorities is simply that their by-laws
be complied with.

w these by-laws are as ancient as the hills, or
be very narrowly approaching it. There is not a
ice to ensure properly proportioned and appro-
designs. Why not? The time has come when
evil-looking houses which are so often erected
e speculative builder and others in our suburbs
l be prevented.

e by-laws deal effectively with construction and
tion, but surely design is equally important, and
l be dealt with in some way. There could be a
ittee of censors.

e Hornsey Local Authority refuses to approve
rass margin road scheme because it does not
m to their by-laws; but the question arises, "Is
heme an improvement or not?" For laws are
for man, not man for the laws; so that if the new
stion is an improvement, as it appears to be, then
he duty of the Council to revise their laws; or,
that, the Local Government Board surely must
ome action.

swell Hill, N. HERBERT COLLINS.

Building Costs After the War.

Editors of THE ARCHITECTS' AND BUILDERS
JOURNAL.

S,—There is a tendency throughout the country
gst private owners, companies, and especially
uthorities, to postpone building operations until
he war, in the hope that the cost of building will
e considerably lower than at the present time.
recently been discussing this assumption with
ous architects, builders' merchants, and contrac-
South Wales, and have been forced to the
sion that not only is there no likelihood of a
ion taking place on the termination of hostilities, but that an increase is quite probable. The reasons for this conclusion may be stated as follows:—

(1) Owing to the general insecurity, the tightness of the money market, and the increased cost of materials, an enormous amount of work that had been contemplated before the commenceent of the war has not been proceeded with. It is probable that the value of such suspended contracts in the United Kingdom considerably exceeds £100,000,000, and we should probably allow for at least five times this amount for Continental suspensions. On the termination of hostilities, the bulk of this work will go forward, and the demand for material will be enormous.

(2) In addition, the towns and villages of Belgium, France, and Poland that have been partially or wholly destroyed will need to be re-built, and we may safely expect that the huge demand for material thus set up will have a tightening effect on the markets.

(3) For many years past, the prices of most classes of commodities have advanced very considerably. Since the outbreak of the war the increases have been abnormal, and although reductions are probable when peace is restored, it is not likely that prices will return to the pre-war level. It may be assumed, therefore, that the cost of living after the war will be higher than the cost before the war. In that event, there will be considerable labour unrest, and wages in the building trade, as in other trades, must go up.

(4) We are informed that after the war there will be a huge boom in trade. In that event the demand for capital will be great, and the rate of interest will be high. If the prices of labour, materials, and money increase, how can we anticipate any considerable reduction in the cost of building?

I have put forward these considerations, not in any dogmatic spirit, but in order that they may be examined by men who are thoroughly familiar with conditions of the building trade. Public bodies, and building owners generally, are usually not in a position to judge the trend of affairs in such a complex industry as building, and I feel sure that they would welcome information as to the future from those who are in a position to speak with authority.

EDGAR L. CHAPPELL, Secretary,
South Wales Garden Cities and Town-Planning Association, 3, Pembroke Terrace, Cardiff.

A Point in the Wren Pedigree.

To the Editors of THE ARCHITECTS' AND BUILDERS'
JOURNAL.

SIRS,—May I correct your cheerful contributor "Ubique" on the subject of the Wren pedigree? The Rev. C. F. C. Pigott has been many years dead, and he was not a lineal descendant of Sir Christopher Wren. Christopher Roberts Wren had only a daughter, who married Chandos Hoskyns. Their daughter, Miss Catherine Wren-Hoskyns, married the Rev. C. F. C. Pigott. She died recently, without issue, and was therefore the last lineal descendant of Sir Christopher. The original MS. of Sir Christopher's love-letter, which you printed, is bound up in the interleaved heirloom copy of Wren's "Parentalia." This was bought by myself, on behalf of a body of subscribers, from Mrs. Pigott, just before her death, and presented to the R.I.B.A.

London, N.W. LAWRENCE WEAVER.

[Referring to the above, "Ubique" says: "Who better than Mr. Weaver to point out this error in the genealogy of our greatest architect? for it was through his persuasive energies that the sum necessary to secure the heirloom copy was raised. I am obliged to him for the correction, and not less so for that adjective 'cheerful,' which, in a time of stress, and in connection with the solemn business of architecture, is particularly gratifying."]

THE ARCHITECTURAL SPIRIT OF THE AGE.

BY A. E. RICHARDSON, F.R.I.B.A.

AT an ordinary meeting of the Architectural Association on February 22, Mr. A. E. Richardson, F.R.I.B.A., read a paper on "The Architectural Spirit of the Age." He said he should endeavour to express the truths he had gleaned from a study of modern architecture, and to indicate the sources of inspiration which, although familiarly known, were not appraised at their true value.

The travelled public was bewildered by the jargon of opposing schools in architecture, and endeavoured to believe in the resuscitation of some threadbare style; in despair, turning to pure reproduction, and continuing to live in buildings of familiar aspect, but all the time aware that the building did not equal the old work, and, despite the expense, did not approach the excellence of some dimly remembered foreign structure.

Mr. Richardson went on to indicate that the cure for the present state of affairs lay in the education of architects to fit them for the position of arbiters of taste, and the encouragement of the public to an understanding of what organic architecture meant, apart from the lures of the house decorator and the furniture dealer.

The Classic Spirit.

From an architectural standpoint the Classic spirit was what they were all striving for. The nineteenth century had been in the main a period of experiment during which the strength of the Classic tradition, as developed from the Italian Renaissance, was proved. He did not refer to the tradition in Great Britain, which was purely local, but to the broader acceptance of the Classic spirit and its manifestations on the Continent and in America. The Classic spirit demanded of a work of architecture, not that it should be clever and original, but that it should be grand and noble. A clear interpretation of the Classic spirit meant a return to the sheer joyousness of living; it did not mean that we were to deny either originality or personality to our architecture, but that we should endeavour that our new buildings presented anew the old spirit, seen from a modern standpoint, and adjusted to our own age.

The eclectic tendencies of the last century, which were directed to the exploitation of historical motifs, were now undergoing a further extension owing to the advance of our point of view. Formerly it was the practice to adhere to certain recognised sources of inspiration, such as Greek, Roman, and Italian, with a friendly eye on contemporary France. Parallel to this procedure, there rapidly developed a tendency to resuscitate the picturesque and romantic buildings of our insular history, culminating in a series of indecisive revivals. We were just recovering from this outburst of misapplied activity, and although in amateur quarters opposition was offered, the neo-Classic tradition of three hundred years would prove the basis for further development. The attitude we should in future adopt towards the antique would be akin to the use of a touchstone—we should measure our achievements by the relics of antiquity, but we should never again make the mistake of pedantry.

Theory of Modern Architecture.

This brought him to the main object of his paper, which was to explain the theory of modern architecture, and to hint vaguely at future developments, signs of which were already in evidence. It was not his purpose to deal extensively with recent English work—a better picture of that subject could be obtained by comparing it with the notable buildings recently erected on the Continent and in America. His interpretation of the term "Modern Architecture" was a wide one, and embraced the last two centuries of building evolution, including structures from Petrograd to Gibraltar, from America to Japan. This course of action enabled him to illustrate the tremendous impulses at work shaping the architecture of to-day and destined to influence the work of the future—to prove on the one hand, that development in design was gradual and depended entirely on the work which had preceded it, and, further, to show how every departure from the sensible and usually accepted led to meaningless caricature.

The iniquitous example of competitions, together with the apathy and carelessness of many architects who did not take their profession seriously, accounted in a measure for the tricky originality and affectation which disfigured English work of to-day. In England at present we were desperately lagging in the track of other countries. We were outclassed by the French in their handling of plan and traffic problems, and we were jealous of our American cousins. Our own tradition was little understood and falsely rendered, few realising that the spirit of the tradition alone needed consideration, and not, in the lust for originality, a mad caricaturing of its finest models.

It was his firm conviction that the spirit of the age was to be found in the world's architecture of the last two centuries. This period contained the impulses which were moving us to-day. True, during this time many experiments were attempted, but these we could afford to pass by; the real achievements alone concerned us. If we studied our own Classic tradition, from Inigo Jones to Cockerell, we were surprised at the up-to-date character of the best works, and we were sufficiently conversant with the rules to continue the sequence. This procedure, however, was not entirely satisfactory. We must refer to the French school, particularly to those works of the eighteenth and nineteenth centuries, from Mansart to Pascal, and the comparison would prove our shortcomings. We must explore the cities and towns of Italy for the buildings of the same period, particularly Turin, Naples, and Rome. He could name a host of Italian architects whose works should be studied, but those of Maderno, Niccolini, and Sacchoni were comprehensive. Likewise the work of the Austrian architects in the cities of the Trentino; for example, Nobile, Ferstel, Pertsch, and Molari at Trieste, and Von Hansen at Vienna, and others at Buda-Pesth. The modern architecture of Spain had never been clearly explained.

The magnificent buildings at Petrograd and Moscow, legacies of the Napoleonic *régime*, were unknown to the majority. Even modern Greece and the cities of the Balkan States held good motifs. And then we had the example of America, with its wealth of modern architecture and the passionate obsession of its leading architects for scholarly work.

Finally, he must add a word for Germany, not in favour of the modern hobgoblin pikelhauben manner (which
view appeared as the play of vulgar
ren, and in its coarseness showe
brutal influence of the military spirit
to German architecture of seventy
ago, when the French influence was
ascendant. He referred to the nan
Langhans, Schinkel, Leo von Klenz
Chateauneuf, to convince them of
Germany had lost. We were in a p
to-day to refer to and appreciate at
proper value the great folio volun
the nineteenth century, the compil
of Durand, Krafft, and Ransonette,
let, Letarouilly, Handebourt, R
Isabelle, Canina, and others. These
formed the chief treasures in the lib
or such men as Cockerell and Barr
he was told that McKim was well
in their use. Such splendid guides
theory of architecture should prev
from following the fatal lure of indi
ism, and their study should promot
sistent sequence. It should also
membered that an individual ar
could do little to work a change; st
building had been the work of cen
the produce of nations, and the inf
of a single mind could do little to al
trend of events.

The Fetish of Craftsmanship.

Mr. Richardson warned young arc
against the fetish of craftsmanship,
had been worshipped to excess; also
doctrines of many who held the cre
design was the outcome of constr
and forgot that the reverse was the
conception of the whole inevitabl
ceded the construction of parts, the
function being entirely secondary.
was, of course, some overlapping
application of this theory, but it w
cognised that conception subordina
other considerations.

He further warned them of the
adventitious originality, and the p
of innovating detail.

In conclusion, Mr. Richardson sa
in expounding his idea of the
"Modern Architecture" he had r
them to the antique for beauty of
tion, technique, and detail, to the
Renaissance for pure form, to the
for modern planning and composit
the English tradition for reticen
America for breadth of outlook and
prise, to modern Italy for vigour,
Germany for frightfulness. By m
the lantern slides he hoped to qua
arguments, and the following s
would show the line he intended t
They would view some important
ings of the English tradition, follo
the parallel development in America
they must discuss some notable ex
of the French tradition, in Fran
other countries. He should touch
on one of the finest buildings in
If there were time to pursue the
they could undertake a world tou
object would be to show that the
domestic school needed chastening i
to compete with the highest exam
the Georgian period in England a
Colonial in America, and that conve
spaciousness, and simplicity were
importance than pretty effects. Fr
monumental architecture of Fran
America they would deduce opinio
cerning similar work in the
Empire.

He was not a prophet or a ma
and he could not lift the veil t

architecture. He was, nevertheless, assured that the buildings he into bring before them contained the of the future.

The Discussion.

John Burnet, in proposing a vote of ; to Mr. Richardson, said he had quite excited with pleasure at the ılar tour" they had taken. Mr. ·dson had passed them through a variety of interesting work. His ntary was at times, perhaps, more —especially on English work—than iite prudent, but they would let that He did agree, however, with a good Ir. Richardson had said. One thing ear to all of them from the illustrahey had seen—that the best architec- every country was the expression ultured mind of the requirements of ty and generation. They had, he opinion, for years thought too much their drawings, and their architecad run a great risk of escaping them ther. Our buildings had become te representations of drawings, and e simple realisation of the needs of . He had thought all his life that ent's first duty was to make himself of the craft of architecture. They try to look at their art more as the r and the sculptor regarded theirs. should study the past, not with a to remembering its details, but to e right spirit out of it. He thought conscious desire to express inality, or to imitate the past, was g but a form of priggishness.

Arthur Stratton, in seconding the said those who had followed ichardson's writings, and his exework of the last few years, had anti- this paper would be, as it was, terised by scholarship, and by a y of the problem of modern architec- He had seldom heard a paper more inspiration and more suggestive. iate, indeed, said Mr. Stratton, was an whose work was so highly devel- as to appeal to Mr. Richardson. He only masterpieces. He set before a Classic ideal. and it was quite it that he would have the architects day and the future—as they should en of culture. Culture was defined atthew Arnold as a state of perfecand he thought that was the kind of e Mr. Richardson would have.

URES ON THE ARCHITECTURE OF BELGIAN TOWNS.

eries of six Carpenters' Company's s on "The Architecture of Belgian " will be delivered at University e, Gower Street, on Thursdays at .m., beginning on March 4. The s will be respectively as follows:— 4.—M. Victor Horta, Director of cademy of Fine Arts, Brussels, on iitecture in Belgium since 1840." 11.—M. C. F. Caluwaerts on "A al Review of Belgian Towns— ls, Malines and Louvain." March 18. Portielje, Honorary Secretary of the Society of Architects of Antwerp, on n Planning in Antwerp, Past and ." May 6.—Mr. Arthur Stratton, .B.A., F.S.A., on "Bruges and " May 13.—Mr. P. Abercrombie, on "Brussels." May 20.—Mr. P. ombie, M.A., on "Brussels." The s will be public. Tickets of sion for the whole course, or for te lectures, can be obtained on sendstamped addressed envelope to the ary, University College, London.

GRINLING GIBBONS AND HIS CONTEMPORARIES.

If all the existing carved work which is attributed to Grinling Gibbons, to say nothing of the considerable quantity that has been lost, had been actually executed by him, he would stand forth as the supreme example of an incredibly strenuous life of exceptional duration. Mr. H. Avray Tipping, in his fine monograph on Gibbons, has made a skilful and no doubt very successful attempt to discriminate between the genuine and the unauthentic survivals; for, indeed, it should not be much more difficult to savour individuality in carving them to recognise idiosyncrasy in handwriting; although in both cases there are several occasions of stumbling, and Mr. Tipping confesses that doubt has sometimes arisen where the craftsman's delicacy of touch was lost beneath coatings of paint or varnish.

About the life of Grinling Gibbons so little is known that all temptation to make the monograph a mere biography was absent. A rather slow approach to the man himself is, perhaps, one result of the dearth of data, but it affords an excellent opportunity to show, after the right evolutionary method, and with much lucid description and many interesting examples, the rise and progress of carving in England, from Saxon times down to the appearance of Grinling Gibbons.

Like many another chief person of the drama, Grinling Gibbons is not brought upon the stage until the play has made considerable progress. Before his arrival, we get four explicatory scenes showing, respectively, the Rise of the Joiner, the Influence of Inigo Jones on Woodwork, England's Debt to the Continent, and the First Years of the Restoration. Then enters Grinling Gibbons, and immediately two or three personal points are made clear. There had been some uncertainty as to whether Gibbons was an Englishman born in Holland, or a Hollander born in England, and as to whether his surname was Gibbon as Evelyn habitually rendered it or Gibbons as most other writers prefer it.

That he was born in Holland is established beyond a doubt, and in an almost absurdly interesting way, from a document found among the Ashmolean MSS. in the Bodleian Library at Oxford. Besides being an antiquary, Ashmole, like many another knowledgable man of his time, dabbled in astrology, and to him Gibbons applied, in 1682 (signing his name unmistakably "Grinling Gibbons," with a well-marked final s), for skilled opinion as to the prospects of success in "a Consarne of great Consequens"—some overseas trading adventure. Your really competent and conscientious astrologer affected the methods of exact science, and based vaticination on mathematics, and in order to calculate the consequences of Gibbons's shipping adventure, Ashmole required the minutest possible data of time and place of birth, and thence we get the very explicit information that Grinling Gibbons was born at Rotterdam (latitude and longitude so-an-so), at about 3.30 a.m. on Easter Tuesday, April 4, 1648, Old Style. A letter from a sister of Gibbons supplying this information to her brother shows that she was living in England at this time, and that she was evidently accustomed to write her letters in English; whence, and from the rather dubiously admissible speculation that Gibbons, being musical, might have been the son of that Simon Gibbons who worked as a master-carpenter for Inigo Jones; that Simon, being also musical, might have been the son of Orlando Gibbons the composer; and, further, that, master craftsmen, finding but little employment in England during the Commonwealth, but being in great demand in Holland:—therefore, though born in Holland, Gibbons was of English descent. Q.E.D., or *quod est absurdum*, according to taste.

It was, of course, John Evelyn who discovered Gibbons; and the story is retold of how the diarist, walking one day near his estate at Sayes Court, Deptford, looked through the window of a lonely cottage in which a young carver was at work on an exquisite crucifix, admired the artistry, introduced the artist to Charles II., and was deeply incensed at the adverse criticism of a French "pedling woman" who had the ear of the queen, but understood art "no more than an asse or a monkey." It was Evelyn who introduced Gibbons to Christopher Wren, whom, anticipating the wise saying that "a good dinner lubricates business," he asked to join Pepys and himself in a meal at Sayes Court. Afterwards he took them both to see Gibbons at work. What a subject for a Seymour Lucas—Evelyn introducing Pepys to Grinling Gibbons at work.

It was not for Wren, but for Hugh May—an architect of whom, save for the references to him in Evelyn's Diary, little or nothing is known, but who, Mr. Tipping remarks, was doing work "in Wren's style" while Wren was known chiefly as a professor of astronomy—that Gibbons did his first important architectural carving. This work seems to have been done for the adornment of Lee Place, in South-east London, where a rich member of the Council of the East India Company, Christopher Bohun or Boone, had his residence, which disappeared in 1825. In the now populous suburb of Lee, the name of this Nabob is still commemorated in "Boone's Almshouses," "Boone Street," and "Boone's Chapel." The chapel was illustrated in this journal a year or two ago as a relic of Wren.

Gibbons's work, as our author does not fail to remind us, "presents the "curious anomaly that, at the moment when the Classic spirit triumphed in our architecture, when the immutable and all-including rules of Vitruvius, as amplified and coordinated by Palladio, were accepted as their creed by English designers, the treatment of the components of decoration disobeyed authority and strove to be not an adaptation from Nature, but Nature its very self." It was this naturalism which was ultimately Gibbons's undoing; for, even before his death, which occurred in 1720, he and his style had lost their vogue. Surfeit was, perhaps, partly the cause of this revulsion; for he had filled not only the chancel of St. Paul's and the State apartments at Hampton Court, and several university buildings, but also such great country houses as Belton, Petworth, and Chatsworth, with his graven images of chubby cherubs and Heroick Virtues, his flowers and foliage, fruit and peapods, organ cases and clock cases, screens and seats, vases and urns, overdoors and overmantels, panels and borders, brackets and scrolls, swags and drops, and garlands, ribbons and tassels; and, for his very excess of virtue, or virtuosity, the public may have tired of him and his perpetual peapods, even as it grew weary of Wren's spires. When what our author calls the Burlington school of architecture came into favour, there arose from it a marked preference for a conventional or Classical method of treatment—the round was rejected and the flat was favoured.

Then the question arises, was Grinling Gibbons a real artist, or merely a superlative craftsman? That he was both there can be no doubt. None but an artist could have triumphed as he has done over his fundamental misconception that art is imitation. He did not see, or would not acknowledge, that art should not, need not, and cannot compete with Nature in the production of still-life forms, because he cannot compete with her on equal terms. An artist is wise, therefore, to avoid an issue in which he must be hopelessly worsted, His legitimate function is to observe, interpret, suggest, adapt. As the Greeks knew well, he must avoid transcription, and conventionalise his ornamentation. Gibbons was an artist by virtue of his instinct for the right arrangement and composition of the forms into which, also, he put the artistry of sympathetic feeling for the soul of things, and for grace, delicacy, and beauty; wherein excelling, he charms us to forgetfulness of his foredoomed endeavour to vie with Nature in the production of pea-pods and poppy-heads, and the rest of his floral and vegetable paraphernalia.

It will be easily inferred that Mr. Tipping has produced a most interesting book. He knew where to find and how to select his examples, and he knows how to describe them in the middle way that neither frightens the country-house lady nor offends the virtuoso. It follows that his text is not a dry and bald catalogue to accompany the fine collection of illustrations that he has brought together. He treats his subject quite seriously and quite philosophically enough, on evolutionary and comparative methods, and to that end takes into account all the ascertainable circumstances that could have influenced Gibbons's work—his forerunners, his contemporaries, the public spirit and the social conditions of his times. Consequently the book, being valuable as well as beautiful, is no mere drawing-room adornment, but is a covetable acquisition to an art-lover's library.

"Grinling Gibbons and the Woodwork of his Age" (1648-1720). By H. Avray Tipping, M.A., F.S.A. Pages xii. + 260, 16½ in by 11¼ in., 25s. net. London: Offices of "Country Life," 20, Tavistock Street, Covent Garden, W.C.; and George Newnes, Ltd., 8-11, Southampton Street, Strand, W.C.

TRADE AND CRAFT.

Electrical Heaters and Radiators.

A twelfth edition of their illustrated list of electric heaters and radiators has been issued by the Edison and Swan United Electric Light Company, Ltd., Ponders End, Middlesex, who, in this separate section of their general catalogue, show many interesting types and patterns of this class of apparatus, more than sixty illustrations being given. These offer a wide range of choice and of service, of size, shape, and decorative treatment. A very practical form of heater, the "Quartzalite" A type, which has been specially designed for the use in ships' cabins, bathrooms, bedrooms, dressing-rooms, offices, etc., is so small that it can be fitted in any position, and so light in weight that it can be inverted over a plate to keep food warm. Heaters of specially elegant design are supplied in various finishes—black iron, vitreous enamel, nickelled iron, aluminium, or polished brass, and of various capacities and prices. Some are controlled by two switches, and some by four; in the latter case the heaters are of great power, but are easily regulated. These heaters are made under the Bastian patents. Not less elegant in design are the radiators and convectors on the Dowsing or the Dowsing-Huntley system, of which many excellent patterns are shown in the catalogue.

Shop-lighting in War Time.

In consequence of the police regulations shopping thoroughfares show many amateurish attempts at light diminution. A much-favoured method is the fixing of tissue paper shades round bare lamps. This is not only ineffective, but is a distinct source of danger. As a result of the lack of illuminating knowledge, the results achieved are, more often than not, gained at the expense of practically the total sales-value of the show window itself. Yet it is quite possible to light a window in such a way as to ensure a brilliant light on the goods and, at the same time, avoid glare on the pavement.

The British Thomson-Houston Co., Ltd., who have had extensive experience in shop-lighting, both for the inside of the shop and for the show window, inform us that few, if any, alterations in their lighting arrangements have been required where indirect or concealed lighting had been adopted before the war. We are asked to state that readers of this notice may call upon the British Thomson-Houston Co.'s illuminating engineers for free advice as to the lighting of windows in an efficient and approved manner.

Messrs. Harris and Sheldon's Annual Meeting.

Presiding at the annual meeting of the shareholders of Messrs. Harris and Sheldon, Ltd., the well-known shopfitters, held at Birmingham on Monday in last week, Mr. J. E. Sheldon, the managing director, said that although the company had had a good year up to the end of July, making a fair rate of profit, since the war commenced this had failed to be maintained; but in spite of the difficulties met with in adjusting the machinery from the manufacture of one kind of work to another, they had been able to fill up the gap by going in for contracts for the War Office in joinery work (which their artisans were well adapted to deal with), and the firm are receiving further contracts from time to time. The contracts were naturally not so remunerative as they would like them to be; but the firm were glad to be able to keep their staff (that is, those who had not volunteered for war service) fully employed, and were able to make provision for such of the seventy odd members of the staff who had joined the forces and had dependents. Mr. R. Richards was re elected a director. The dividend of 5 per cent. on the ordinary shares was approved, and a special vote of thanks was accorded to the directors and all concerned in piloting the business safely through so strenuous a period.

ELECTROLYTIC ACTION ON GAS AND WATER MAINS.

In a paper read at a meeting of the Institution of Civil Engineers on February 23, on "The Electrolytic Action of Return Currents in Electric Tramways on Gas and Water Mains, and the Best Means of Providing against Electrical Disturbances," Mr. Harry Edward Yerbury, M.Inst.C.E., said that electrolysis may be intensified by an extraneous or leakage current from, say, electric tramways worked, as they invariably are, by an uninsulated track. A case is cited w
protective clause was inserted by
company against possible injurious
by such leakage currents.

It was assumed that concrete co
electrolytically and not like a meta
cases are recorded where electrolys
been attributed to an impurity—su
calcium sulphate—which had been
to certain cements of foreign ma
retard quick setting. The seriousn
the mechanical effects due to the pr
of corrosion was pointed out in conn
with reinforced-concrete structures.

The constitution or structure of
has undoubtedly an influence on the
of electrolytic action, and white ca
has been proved to be less suscepti
corrosion and pitting than grey ir
it contains less graphitic carbon
silicon. The influences of high pe
ages of silicon in cast and wrough
was cited.

The preventive measures propos
British and Continental authoriti
order to reduce the potential diffe
between tramway tracks and pipes
classified, and a description of the
tion of a negative booster was gi
detail. Two theoretical diagrams s
the working and effect of a booster s
as compared with unboosted ne
return conductors. Where the rail
the mass of earth are positive to pi
the vicinity of the track, there can
danger to pipes in that area, as th
cathodic.

On the other hand, danger exi
all pipes and metallic structures (
embedded in soil) which are posit
the rails, as it is the flow of c
out of the pipes that has a tender
cause corrosion and pitting. The d
however, is nothing like as great as
appear from the theoretical stand
Obviously, if the boosted and unb
return conductors bonded to the rai
kept at or about the same potentia
ideal system as affecting leakage cu
is brought about. Assuming tha
potential of the rails, at some point
a negatived boosted conductor is b
is lowered to an abnormal degree,
lows that pipes carrying a leakage c
are invited to give up their charge,
difference of potential is thereby incr

The paper concluded with a sum
and a theory was put forward that e
tation in the bore of pipes is often c
by local electrolytic action. This g
might be started as a speck of rust
forming with the iron a galvanic c
the oxide being electronegative to
The electrolyte might be created b
secretions of animalculæ or other
This nucleus would then establish a
circuit, and the growth would contin
the increased bulk of oxide acting
shell to retain the electrolyte.

Iron pipes should be subjected
proper temperature to a dipping in
bitumastic solution, so as to form a
adherent covering. This appears t
the best preventive against interna
external corrosion or pitting. The a
suggested that a field of research is
to metallurgists to determine wh
corrosion of wrought iron and steel i
to local electrolytic couples set up by
internal crystalline arrangement
thermal or mechanical stresses in m
facture. It appears that cold worked
is generally anodic and can be ch
to a cathodic condition by anne
When cold worked and unworked
are in contact the possibility of an el
lytic couple exists. Alternating
steel is also a potential cause of corr

CONCRETE AND STEEL SECTION.

(MONTHLY.)

EINFORCED CONCRETE ECONOMIES.[*]

A. WATSON, Assoc.M.Inst., C.E., M.C.I.

ile great savings can be made in ing walls, it is generally not so mical to employ reinforced concrete external walls of buildings, as brick up to a thickness of 14 in. are er; but when walls have to be thicker is, reinforced concrete comes in. As, the proposed London County Coun- gulations, all external walls need s a rule, exceed 14 in. in a framed ng, it is probable that reinforced te walls for this purpose will soon to be used from the point of view of ny.

h regard to the adoption of rein- concrete-framed buildings outside ndon area the economy is very con- ble. Inside the London area the n County Council, by their regula- propose to reduce it as much as pos- There are, however, opportunities ct savings over a steel-framed build- en in London.

re is another factor which enters e question of building operations of ds, and that is time, and I mention his connection because many people opinion that the quickest form of uction is steel construction; and if gs have been prepared a long n advance, so that the steel frame as been fabricated beforehand, and dy for delivery the moment it is ed, it may be that the steel frame quicker, but this is not always so; starting from the same point—that time when working drawings of einforced concrete frame and steel are ready (generally some time after undations of the building have been l)—it is possible in ordinary times to steel bars in fourteen days from that but it generally takes six weeks to built-up stanchions, so that at the ning reinforced concrete gets a four- start.

in, in steel-framed buildings archi- se coke-breeze concrete or broken concrete between the R.S.J. fillers. r of these is watertight; reinforced te 4:2:1 is practically so, and in a g constructed some years ago seven high I remember the plaster work arted on the ceilings of floors below urth before the seventh floor was d; and as each of the remaining took about a fortnight to do another or six weeks was gained on the ramed building, as asphalt on the ould have been necessary to prevent ming through the breeze or broken loors and spoiling the plaster.

eems hardly necessary to mention the construction of bridges, say up ft. span at least, reinforced con- is nearly always the most suitable al. There are, of course, excep- but the mere question of the cost of nance of a steel bridge seems to me h to condemn it.

question of maintenance is also enough to decide an architect or engineer to choose reinforced concrete for the construction of, say, small water towers, coal bunkers, gasometer tanks, or any similar structure heretofore built in steel, and exposed to atmospheric conditions, even if reinforced concrete is not cheaper in the first instance.

With regard to timber structures the same applies, and, in addition, the relatively greater resistance to destruction by fire makes the advantages of reinforced concrete so apparent that one wonders why timber is employed in the construction of wharves at all.

But, to turn to the other side—namely, economy in reinforced concrete—I would like to emphasise a point which in these strenuous days of competition seems to be overlooked, or rather ignored, and that is the enormous amount of waste which occurs through one of the methods adopted by architects to obtain cheap prices for the carrying out of work. An architect prepares the general design of a building and sends sunprints of same to four, five, or even six different firms of specialist designers, who in turn prepare each their reinforced concrete scheme and send out to five or six or even more contractors for prices, involving a total of some thirty or forty persons, all of whom spend money and time in tendering, etc. Much valuable time is also wasted which might otherwise be spent in the construction of the building whilst the various prices and schemes are being compared and adjudicated on. This has been going on for years, and is still going on, architects and engineers going to even greater lengths and asking for all kinds of details of reinforcement, etc. This puts an initial charge on reinforced concrete which might be avoided if the architect or engineer would only choose his system, or employ a consulting engineer accustomed to the work to design the reinforced concrete work, and then send out for prices in the usual way.

One difficulty with centering is the amount of props required; and if this is left to the foreman in charge of the work it is very likely that the number put in is either too many or too few, and I would suggest to contractors, what has often been suggested before, that great economies might be effected by employing a competent man to design the formwork. For a steel viaduct supported on trestles of any given height there is a spacing apart of the trestles which requires the use of the least amount of the material, and so with props and centering, and this minimum amount of material varies according to the height of the floor and the thickness of the floor, and must be determined for each case.

For storeys of heights up to, say, 12 ft., scaffold poles are probably the most economical form of prop, but there is a limit to their size, and it frequently occurs when storeys exceed 12 ft. that scaffold poles are not useful, and when this is so, instead of using die square timber, a cheap and economical strut can be obtained by using two 7 in. by 2 in. or 8 in. by 2 in. spaced, say, 6 in. apart and forming them into a lattice-braced compound strut with 2 in. by ¾ in. slating battens nailed to their edges.

Another point which makes for economy in reinforced concrete, but has more to do with design, is the number of steel bars that have to be handled. It will be readily understood that it is just as easy to handle a 1⅜-in. diameter bar 25 ft. long as it is to handle one that is only 1 in. diameter, as the weight is immaterial.

Again, in this connection, I would point out that the 1⅜-in. diameter bars occupy less space in the width of a beam than the 1-in. diameter bars, and the labour cost on concrete may be reduced by 30 to 50 per cent. by the employment of the larger diameter bar.

Again, with fewer bars there are fewer ends, and in many cases fewer stirrups or shear members to fix, and the smith's work is correspondingly reduced.

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[*] ract of paper read on February 18 before the e Institute, Denison House, 296, Vauxhall Road, Westminster.

RESTORING CONCRETE BUILDINGS AFTER FIRE.

Immediately following the fire which on December 9 did serious damage to the plant of Thomas A. Edison, at West Orange, New Jersey, plans for reconstruction were put in hand. The concrete structures, where damaged, are being restored, and work has been started on the phonograph record department.

The columns are chipped down to a shape approximately cylindrical, exposing the reinforcement. In cases where the expansion has bent the bars, they are cut off at top and bottom by oxy-acetylene torches. Additional reinforcement is provided in the form of eight ⅝-in. round bars distributed around the circumference and held in place by spiral hooping of 5-16-in. wire, spaced and held by four notched angle bars. A 1:2 cement mortar is then applied, using cylindrical steel forms. The restored column is 30 in. in diameter. The new material can only be deposited up to the underside of the beams with the forms; the remainder will be placed by the cement gun.

Where the column shafts have been sheared the concrete and its reinforcement will be chipped off, leaving short stubs at top and bottom. The necessary shores will be placed before this work is undertaken. An adequate amount of longitudinal reinforcement will be provided, supplemented by spiral hooping, similar to that used for the other columns. Concrete will then be deposited, and in inaccessible places the cement gun will be used.

Where columns have failed so badly that the floor above has deflected, the floor will be jacked up.

The beams and girders will also be chipped until the reinforcement is laid bare. As no T-beam action can be counted on, because of the construction joint between floor slabs and beams, an adequate compression flange will be provided below the slab. The new shape of the beams and girders, it is reported, will therefore be trapezoidal, the upper part being reinforced by two angle bars to which new stirrups will be connected. Because of the impossibility of using forms, the new parts of the beams and girders will be placed by the cement gun.

All wooden floors with their cinder fills between nailing strips are being taken up and a 1½-in. wearing surface of 1:2 cement mortar put on and trowelled.

THE ECCENTRIC LOADING OF COLUMNS.

THE EFFECT OF END-FIXING UPON EQUIVALENT ECCENTRICITY.

BY EWART S. ANDREWS, B Sc.Eng., M.C.I.

THE subject of the eccentric loading of columns has received much consideration during the past thirty years, but in the purely mathematical investigations which have been made—the results of practically none of which are employed in practical design—the eccentric condition of loading assumed is not at all the same as that which occurs in most cases in steel skeleton construction.

The case which we are considering in the present article is that in which a load is applied to a column by means of a bracket intermediate between its ends as indicated in Fig. 1.

The commonest method of treatment given in the text books, and employed in the R.I.B.A. 1911 report upon reinforced concrete, is as follows:—

Let A = cross-sectional area of the column.
W = load.
B = Bending Moment.
e = eccentricity of load.
Z = compression section modulus of column section.
d = distance from the neutral axis to the compression edge.
k = radius of gyration of section about the neutral axis.

Then combined compressive stress

$$= c = \frac{W}{A} + \frac{B}{Z} = \frac{W}{A} + \frac{We}{Z}$$

$$= \frac{W}{A} + \frac{Wed}{Ak^2} \quad \left(\text{because } Z = \frac{Ak^2}{d}\right)$$

$$= \frac{W}{A}\left(1 + \frac{ed}{k^2}\right) \qquad (1)$$

This is true, as a first approximation, for a column which is quite free at the top—such as the standard carrying an overhead electric tramway cable—but is not true for a column supported at the top. The London Building Act specifies that the stresses due to eccentricity of load shall be computed, but does not say how it is to be done.

We will divide our treatment into three cases, which are taken in their order of difficulty:—

(1) Columns hinged at both ends.

(2) Columns fixed at the base and hinged at the top.

(3) Columns fixed at each end.

We will investigate the bending moments in every case, and will see that they depend upon the position of the bracket on the column. Our treatment is reliable only for stiff columns, *i.e.*, columns with no appreciable deflection; if such deflection is appreciable, it will cause an increase in the bending stress.

As a first approximation, this increase might be computed as follows:—

Let B be the bending moment computed in the column by the foregoing treament, and let B^1 be the corrected bending moment due to the deflection, then

$$B^1 = \frac{B}{1 - \dfrac{Wl^2}{10EAk^2}} \qquad (2)$$

We shall find the maximum bending moment from which we may calculate the equivalent eccentricity, then deducing *fixing coefficients m*, by which we have to multiply the actual eccentricity *e* to get the equivalent eccentricity upon which we have to calculate our stresses.

Our corrected formula then becomes

$$c = \frac{W}{A}\left(1 + \frac{med}{k^2}\right) \qquad (3)$$

(1) *Column hinged at both ends.*

The effect of the eccentric load is to cause a direct thrust down the column equal to W and to exert equal and opposite forces F at the points F and G. These cause reactions R_E, R_D at the each equal to $\frac{W\ e}{l}$, where l is the of the column.

R_E has a moment about F e $-\frac{W\ ea}{l}$ and R_D has a moment G equal to $\frac{W\ eb}{l}$ and between points the bending moment c sign, the complete bending n diagram being as shown in the Therefore we have (neglecting th which is not of present importanc

Max. B M above C = B = $\frac{W\ ea}{l}$ =

$$\therefore m = x$$

Max. B M below C = $\frac{W\ eb}{l}$ = W

$$m = \beta$$

It will be noted that the direc pression acts only from C to D, our formula (3) becomes

$$c = \frac{W}{A}\left(1 + \frac{\beta\ ed}{k^2}\right)$$

Between C and E there will b bending stress, but there may be i a secondary tensile stress in this if the hinge at the top is a close such tension will tend to relieve th pression stress in the lower portic general, however, we may assun the hinge will move down sufficie allow the column to bend freely a cated.

(2). *Column hinged at the top end an at the bottom.*

The first treatment of this and th case that we are acquainted with to Mr. E. G. Beck* followed by Pro Nicholson, and a treatment is given b Morley in his "Theory of Struc

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* *Engineer*, Dec. 12, 1910, and Jan. 20, 19

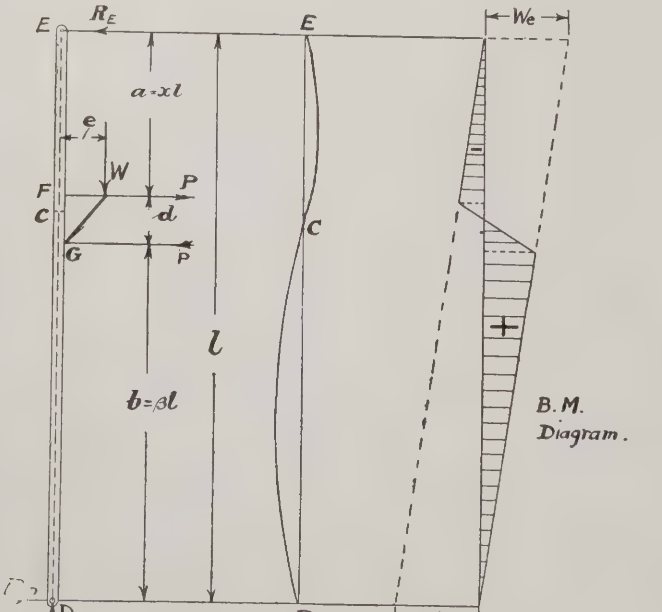

FIG. 1.

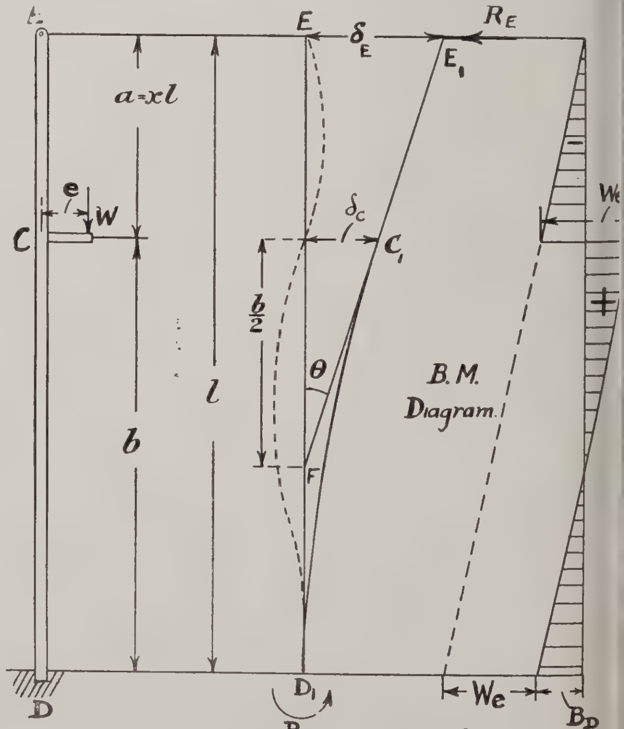

FIG. 2

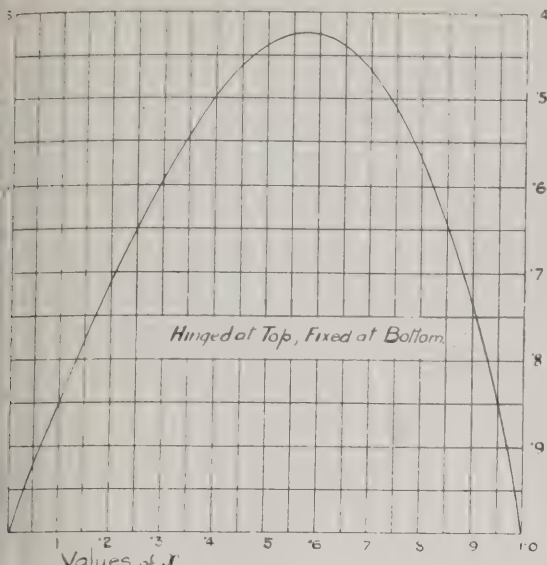

FIG. 3

mans). He deduces his results by eration of the elastic line of the by integration; we will consider blem in equivalent manner without ed mathematics by first imagining hinge E to be removed and calcu- he force necessary to be applied to to bring the deflection back to zero column to its deflected form shown ed lines.

rder to simplify the calculation we that the depth *d* of the bracket is oly small; this errs on the safe

e hinge E be removed, the column flect as shown in exaggerated form 2; D_1C_1 will be a circular arc, the bending moment is constant D, and C_1E, will be straight. For ilever of length *b* subject to a it bending moment B, the deflection

$$\delta_C = \frac{B\,b^2}{2\,EI} = \frac{W\,eb^2}{2\,EI} \qquad (5)$$

straight portion E_1 C_1 is tangential circular arc C_1 D_1, and when pro- intersects the vertical through D_1 at F, and when the angle C_1 F E is as it would be in any case in prac- C will be equal to $\frac{b}{2}$. ∴ The total on δ_E will be given by the relation:

$$= \frac{FE}{FC} = \frac{a + \frac{b}{2}}{\frac{b}{2}} = \frac{2a + b}{b}$$

$$\therefore \delta_E = \left(\frac{2a + b}{b}\right) \frac{Web^2}{2\,E\,I} \text{ by } (5)$$

$$= \frac{(2a + b)\,Web}{2\,E\,I} \qquad (6)$$

suppose that a single force R_E s a deflection δ_E in the opposite n.

$$\text{Then } \delta_E = \frac{R_E.\,l^3}{3\,E\,I} \qquad (7)$$

rom (6) and (7)

$$R_E = \frac{3\,(2a + b)\,Web}{2\,l^3} \qquad (8)$$

ing a = xl and b = (1 − x) l

$$= \frac{3\,(1 + x)\,(1 - x)}{2} \cdot \frac{We}{l}$$

$$= \frac{3\,(1 - x^2)}{2} \cdot \frac{We}{l} \qquad (9)$$

Therefore just above the point C the maximum bending moment is equal to

$$B = R_E.\,a = -R_E \;x\,l$$

$$= \frac{-3\,x\,(1 - x^2)\,We}{2}. \qquad (10)$$

Therefore the fixing co-efficient *m* in this case is equal to $\frac{-3\,x\,(1 - x^2)}{2}$. Just below C the bending moment is equal to We, minus the moment of R_E, so that the fixing co-efficient below the bracket is (1 + m).

The values of these co-efficients are plotted in Fig. 3.

The bending moment B_D at the fixed end is equal to

$$B_D = We - R_E.\,l$$

$$= \left\{1 - \tfrac{3}{2}\,(1 - x^2)\right\} We \qquad (11)$$

The values of *m* for this end bending moment are plotted in Fig. 4.

In any given case, *i.e.* for any given value of *x*, it is suggested that the value of *m* to be taken in equation (3) should be the numerically greater of the values for the end and below the bracket.

(*To be continued.*)

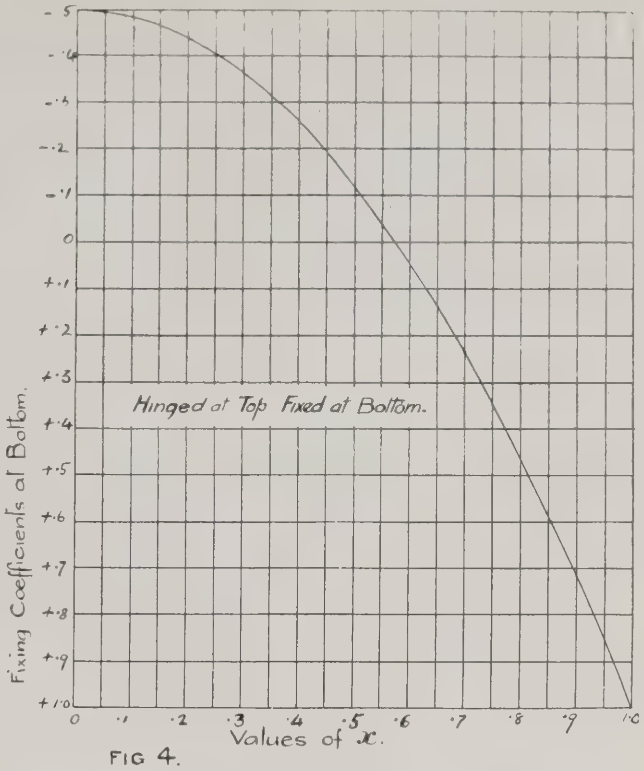

FIG 4.

WANTED, A PAINT FOR CONCRETE SURFACES.

It would appear, according to a Canadian writer, that we need a paint peculiarly adapted to the coating of concrete surfaces. The requirement of such a paint must be exacting, and such a paint to meet the needs must be:

A durable protection, resisting disintegration of concrete by the elements, a preventive of dampness through resistance to water and moisture, a paint that can be applied directly to the concrete surface without any previous treatment. This paint must be economical. After weathering it must offer a good surface for repainting, it must be adapted to receiving and holding a plaster coat. It must be so constituted that it will be artistic, appropriately pleasing to the eye.

Its consistency and nature should be such that it will spread easily, work well under the brush, penetrate the voids, fill and cover hair cracks, and act as a bond of connection between the concrete and succeeding coats. Not only must it penetrate and fill up the voids, but it should in a measure level up the rough portions of the surface. It must be suited to painting over damp and wet surfaces, and dry even when surrounded with moisture. When dry it must adhere to the surface, be sufficiently elastic to conform to changes in temperature, and remain hard in the presence of moisture or water in any other form.

As in all paints for wood and iron, the vehicle in a paint for concrete is a very important factor. It must not be linseed oil, blue, casein, or any other substance with like characteristics. It should be difficult of saponification, and of low saponification number. Some kind of varnish product peculiarly adapted to the purpose is required.

The pigment, as in linseed oil plant, has its function to perform. It must be, for the first coat at least, alkali-proof. Not only must it decorate, but it must protect the vehicle, and, in conjunction with the vehicle, the surface coated.

A paint consisting of both pigment and vehicle working in unison, with the minimum of opposing forces, favourable of application, serviceable under exposure, resistant to water and moisture, economical to the consumer, is necessary to perform the function, to meet the need, to fulfil the requirements of a paint for concrete.

[This writer's demands seem to be rather rhetorical, and we reproduce them as much as a typical specimen of this kind of over-elaboration as for the practical value they no doubt also imply. When the author gets what he wants, the perfect paint will have been discovered, and apparently it will be suitable not only for concrete surfaces—for which, indeed, it is least needed, and will be in least demand—but for universal application: a paint that can go anywhere and do anything. But, in this country, there are many who hold that cement surfaces should never be painted at all.]

PROTECTION OF BUILDINGS FROM FIRE.*

BY A. ALBAN H. SCOTT, V.P.S.A.

In reading through the London Building Acts with fire precautions specially in mind, it is pleasing to note what great care has been taken generally regarding the construction of buildings from the fire point of view. In spite of all these precautions, I think additional provision for escape of occupants in case of fire should be provided, and the powers given to the Council still further increased in this respect.

It would be advisable for the London Building Acts, and in fact all our by-laws throughout the country, to make it compulsory that *all* external walls and internal partitions and floors are constructed of fire-resisting material. This sounds perhaps rather a startling proposition, but if we just consider for a moment the following figures it does not perhaps mean quite such a drastic expense as one would think from an outline statement.

The whole of the following costs have been based on the current cost of materials:—

	Per ft. sup. Pence.
Floors.—Wooden floors suitable for domestic buildings taken in spans of 12 ft.	11.3
Fire-resisting floor, ditto	17.3
Wooden floors for workshop at 200 lb. super load per sq. ft. Spans 10 ft.	28.9
Ditto, ditto fire-resisting floors	34.4

(Basis of last two items taken for floor 30 ft. by 100 ft.)

	Per yd. sup. Pence.
Cost of wood framed partition, plastered on both sides, per yard super	72.8
Cost of fire resisting partition, plastered on both sides	72.0

Although there has been, through various causes, such a levelling up of prices and gradual reduction in the difference of cost between fire-resisting and combustible materials, there is one point in the construction of work where this has not occurred quite so rapidly as one would perhaps desire, namely, in the construction of windows.

Wooden windows have always been very much cheaper than steel windows, and, unfortunately, there is still a big difference. (This does not refer to steel sashes suitable for factories and workshops; these are cheaper than wood.) I would suggest that some special endeavour should be made to bring the cost of steel windows more to the level of wooden windows.

The London Building Acts should perhaps be considered one of the wonders of the world, but I think there is no act in Great Britain more courteously, fairly, and sensibly interpreted and administered. It would, I think, be a great mercy to the building owner, the community generally, and to architects if the London Building Acts were in force through the country (with certain modifications), and administered by district surveyors of the same standard and training as in London.

I do not propose to touch upon all the points in these Acts which relate directly or indirectly to fire prevention in its various aspects. The widths of streets and frontage lines indirectly bear upon the point as well as courts within a building and space at rear of domestic buildings. As to the courts, I would like to see introduced that where the opposite walls of courts are less than a certain distance apart that all openings in the walls should be protected by fire-resisting wired glass and hard metal frames and sashes.

Clause 55 (1894 Act) deals with timber in external walls, and it has always appeared to me that it would be only reasonable if the shop fronts and frames were formed of incombustible material for a height up to the window glass line, but in no case less than 2 ft. 6 in. above the adjoining pavement.

Clause 56, dealing with bressummers, should, I suggest, be amended so that the stone used should be capable of resisting fire and water for a specified minimum period, and also the iron columns and stanchions under bressummers should be required to be cased in for protection.

Clause 59 might be amended so that no parapet wall need be more than 8½ in. in thickness.

Clause 62 should be so amended that all floors, irrespective of height, should be constructed of fire-resisting material.

Clause 64. The word "stone" should be deleted, and corbels for all chimneys should be supported on fire-resisting material other than stone or hard timber.

In Sub-section 6 provision should be made so that all flues are lined with fire-resisting piping of stoneware, and the junctions of the piping should be rebated and set in fire-clay mortar, and the other subsections amended accordingly.

Clause 64. Sub-section 19 reads as follows: "A chimney breast or shaft built with or in any party wall shall not be cut away unless the District Surveyor certifies that it can be done without injuriously affecting the stability of the building." I suggest that the words "the fire risks and" be added after the word "affecting."

Sub-section 22 allows wooden plugs to be "driven" within 6 in. of the inside of a flue or chimney opening. This "driving" of plugs is generally executed after the parging, and many cases have been observed where such driving has opened up the mortar joint through to the flue. No wooden plug should be "driven" in in any flue or chimney where the encasing brickwork is less than 18 in. thick, and the plugs should not be driven to a distance greater than 3 in. into such brickwork, and all skirtings, picture rails, cornices, etc., should be formed of fire-resisting material round all flues, chimney breasts, etc.

It is a pity that Clause 66, Sub-section 1, does not take effect for gas-heated fittings, and the two last paragraphs of Sub-section 5 should be omitted. Low-pressure hot-water pipes have often been found at a temperature of 212 deg. Fahr.

Clause 68 should read that all floors and staircases, irrespective of the size or use of the building, should be constructed of fire-resisting material, and, further, the top floor constructed of such strength that if the roof is not also constructed of fire-resisting material it would successfully withstand the collapse of the roof in case of fire. Many fires have become a total loss owing to the roof or one floor collapsing and causing the whole series of floors to collapse like a pack of cards unsupported.

Section 70 would appear only to take care of the question of light and air, and where a room is only lighted by a lantern light some extra provision should be made for a second means of escape in case of fire.

Clause 74. Sub-sections 2 and 3 should be amended similar to the suggesti Clause 68.

Clause 80. With but slight qua tions should be made applicable to ing buildings as well as to new build

After dealing at some length wi revised list of fire-resisting materials in the London Building Acts (Amend Act, 1905, and with the fire-insurance panies' requirements, Mr. Scott re in detail to precautions for extingu fires. Of sprinklers he said: If a littl and attention is given to the design a building with the idea of sprinklers installed, the actual construction ne be less economical, and if the build so designed considerable cost can be in the installation of sprinklers, rules demand that sprinklers sha placed generally speaking about centres, but this is subject to the of beams and to other similar obstru on the ceilings. All spaces such as in roofs must also be provided sprinklers, and with regard to the pr of water required or desirable it sho remembered that all pressure is me as running pressure. In addition normal pressure obtained by the h water, increased pressure can be ob by installing automatic pumps. T sprinkler installations pressure g must be fixed, together with a rather plicated system of valves, which, ho are not complicated in working.

In conclusion he suggested tha society should take into very seriou sideration the means of escape that be provided for hospitals, infirmarie similar institutions where many of t mates are unable to help themsel case of fire. He was inclined to thin all such buildings should be fitte sprinkler installations, and, further fire-resisting sloping ways with wheel tracks should be provided t floor, the usual exit doors with pani provided, and the beds fitted with at least 4 in. diameter.

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* Extracts from a paper read before the Society of Architects on February 11.

R.I.B.A. EXAMINATION RESU

The Board of Architectural Edu announce that the designs submitted following students in the Final exa tion have been approved:

SUBJECT XVIII.

(*a*) *Design for an Organ-Case Circular Hall.*

Foot, A. A.
Gordon, P. J.
Hull, V.
Knight, W. G.
Lawson, J. Scot
Sanders, T. A.
Tebbutt, H. J.

(*b*) *Design for a Group of Dwellings.*

Brown, W. J.
Cash, H. W.
Filkins, E. W.
Gordon, P. J.
Hall, R. B.
Holden, W.
Jackson, R.
Kassem, H. Z.
Keep, N.
Knight, S.
Luyken, H. M.
Lyne, E., Jun.
Medd, H. A. N.
Minns, S. E.
Mitchell, C. H.
Moss, D. J.
Philp, A. T.
Picton, C. S.
Routley, L. J.
Saxon, F. C.
Taylor, M. B.
Thomas, D. R.
Whitehead, P.
Wilkinson, F.

Designs for other subjects, fro following candidates, have also approved:—

Ap Gruffydd, C. O.
Fisher, H. N.
Gray, G. H.
Moore, R. S.
Wood, A. G.

Licentiates and the Fellowshi

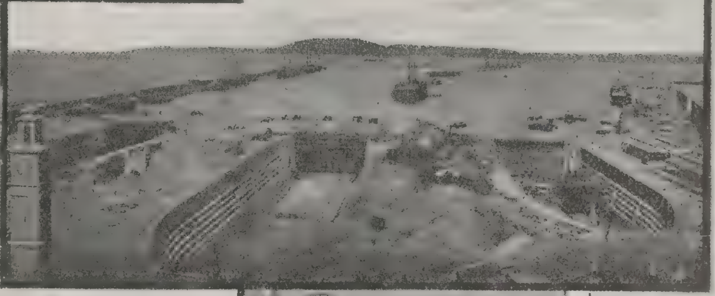
The following Licentiates have the Examination qualifying for ca ture as Fellows:

Baily, Harold, Crouch End, N.
Black, A. B., Adelaide, S. Australia.
Cooke, S. N., Birmingham.
Jenkins, G. H., London.
Swan, J. A., Bi ham.
Stuart, John, field.
Taylor, T. L., G
Carless, W. E., real.

The World is our Field

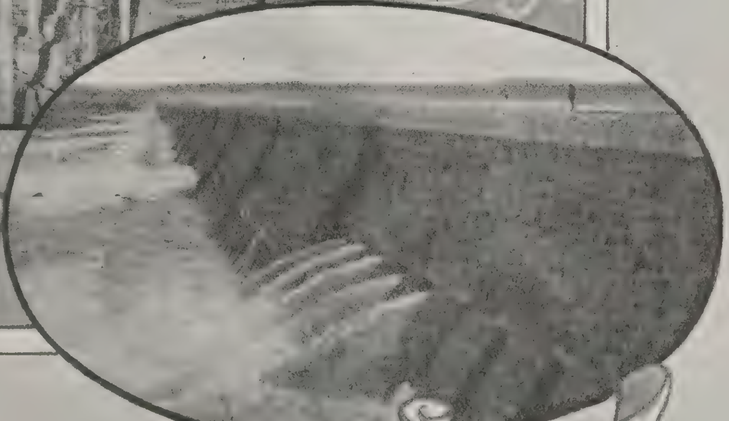
WORKS UPON WHICH A.P.C.M. CEMENTS HAVE BEEN USED

BRAZIL
San Paulo Railway Station



GIBRALTAR
New Admiralty Docks

MEXICO
Monterrey Waterworks



EGYPT
Assouan Dam

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NEWS ITEMS.

Strike of Builders' Labourers in Edinburgh.

Members of the Navvies, Builders' Labourers, and General Labourers' Union struck work in Edinburgh on February 22 on the failure of negotiations which have been in progress since June.

Electric Lighting in Hong Kong.

The General Electric Company of China, Limited, has secured the contract for all the Government requirements for Osram Drawn-wire Tungsten Lamps and electrical supplies for Hong Kong for the year 1915.

Basement as Tank.

A brickwork basement at the Queen's Hotel, Eastbourne, has been just converted into a tank. The brickwork was given a Pudloed cement lining, and now holds several thousand gallons of water. The architect reports that not a sign of damp has shown through.

"Defenders of the Empire."

Messrs. Raphael Tuck and Sons, Ltd., have issued a fine "oilette" coloured plate, 17½ by 13½ in., showing a group of representative types of the Army and Navy, with warships and aircraft in the background. The picture is also reproduced on gilt-edged "oilette" postcards. The entire proceeds of all sales are to be devoted to the National Relief Fund.

Town Planning in Canada.

The city of Regina—the capital of Saskatchewan—has had extensive plans prepared as a guide for future urban development. Mr. Mawson has been working for some months past on the scheme, and has prepared detailed plans providing for parks and other improvements. That the city intends going ahead with the scheme at the earliest possible moment is indicated by the fact that draft legislation giving the city power to expropriate land for parks purposes has already been prepared in the city solicitor's department. It will probably be introduced in the Provincial Legislature next session.

L.C.C.'s Bethnal Green Housing Scheme.

The London County Council last week agreed to proceed with the clearance scheme in the Brady Street area, Bethnal Green. The urgency of the proposal was made manifest by some of the figures quoted in the course of the debate. It was stated, for instance, that the population in the area was 430 to the acre, as against only sixty in the whole of London, while the death-rate was as high as twenty-four per thousand, as compared with fourteen for London as a whole. The expenditure involved in the clearance is £73,800, including £20,800 to be spent in the rehousing of displaced residents. The scheme is to be carried out in two successive parts.

Professor E. S. Prior Re-elected.

The electors to the Slade Professorship of Fine Art have re-elected Mr. Edward Schroeder Prior, M.A., Honorary Fellow of Gonville and Caius College, into this professorship. Mr. E. S. Prior, A.R.A., F.S.A., and F.R.I.B.A., was one of the founders of the Art Workers' Guild, of which he was Master in 1906. He has been secretary of the Arts and Crafts (London) Exhibition Society since 1902, and architect to Cambridge University, Harrow School, and Winchester College. His publications include "The History of Gothic Art in England," "The Cathedral Builders in England," and "The Mediæval Figure Sculpture of England." He represented Cambridge against Oxford in the high jump, long jump, and hurdles in 1872, and was High Jump Amateur Champion in the same year.

PROJECTED NEW WORKS.

Housing Scheme, Yiewsley

Yiewsley Urban District Council are considering a scheme for the erection of not less than fifty houses.

School, Pollockshaws.

Plans of a new school to take the place of the Pollock Academy, Pollockshaws, are under consideration. The estimated cost of the building is £19,000.

Branch Police Station, Leicester.

Leicester Town Council have been asked by the Watch Committee to approve the purchase of land at the corner of Hinckley Road and Carlisle Street for the erection of a branch police-station.

Housing Scheme, Plaistow.

At Prince Regent's Lane, Plaistow, the Port of London Authority has initiated a housing scheme for dock workers. Plans have been approved for 204 houses, to be erected as soon as possible.

Houses, Newton Abbott.

The Newton Abbott Urban Council have passed loans for twenty-five cottages to be erected at once, while a scheme is to be submitted to the Local Government Board for the erection of twenty more houses for the working classes.

Bridges, Glasgow.

Representatives of sub-committees of the Glasgow Corporation and the Clyde Navigation Trustees have favourably reported on a scheme for a bridge at Finnieston, in the vicinity of the Harbour Tunnel. Parliament has sanctioned the Oswald Street Bridge scheme.

Buildings, Barry.

The Glamorganshire Education Authority are to erect an engineering laboratory on a site in Gladstone Road, Barry. The Barry Education Buildings and Sites Committee are considering the erection of a domestic subjects centre at Gladstone Road School at an estimated cost of £3,000.

Public Offices, Shipley.

The Local Government Board have sanctioned, without holding a local enquiry, the Shipley Urban Council's application to borrow money for the erection of new public offices on the Manor House Estate. It is understood that the work will be commenced as soon as arrangements have been made for temporary offices.

Housing Scheme for Dublin.

Archbishop Walsh has informed the Housing Committee of the Dublin Corporation that he has decided not to use the Ormond Market building area as the site of a cathedral. He was to have purchased the site from the Corporation for £12,000. The Housing Committee have now directed the City Architect to set in motion as soon as possible the erection of artisans' dwellings upon the site, acquired by the Corporation with that object.

New Buildings for Bristol University.

Tenders will shortly be invited for the erection of the tower and main buildings of the University of Bristol. As a preliminary, various building firms have been invited to send in names, with a statement as to what important buildings of a similar character have been built by them, and at what contract price, and from whose designs. These particulars were to be sent in to the architects (Messrs. Oatley and
Lawrence), and from the applicatio
ceived names will be selected for inv
to tender. The content of the bu
will be probably upwards of three
cubic feet, and the materials will be
pally local rag-stone, with freestone
and dressings. Heavy English
timbers will be used for the roofin
English oak will be largely repre
among the timbers used for the join

Town Planning, Birminghan

The Town Planning Committee
Birmingham City Council have in
ration a new scheme of town plann
South-West Birmingham. The a
land covered by the scheme is abou
acres, and it forms the largest sche
undertaken in Birmingham. It ap
all the undeveloped land in Selly O
Northfield Wards, and will connect
one side with the scheme now bein
pared for South Birmingham, and
other side with the Quinton and Ha
scheme.

SOCIETIES AND INSTITUT

Yorkshire Federation of Building Employers.

The annual dinner of the Yo
Federation of Building Trades Em
was held at the Masonic Hall, Fitz
Street, Huddersfield, last week, Mr.
Radcliffe (Huddersfield), in the ch

Mr. William Ramsden, sub
"Building Trade Employers and the
shire Federation," said that the b
trade was not in a flourishing co
just now, but when the war was
there was sure to be reconstructiv
which would brighten things consid
and there would also be a renewal o
tion in favour of better housing
working classes with a view to a
social development and, amongst
things, preventing the spread of co
tion.

Mr. A. W. Sinclair, president
National Federation, responding, s
six months ago the federation wa
upon to vote for the first time in its
on the direction of a national lock-
that dire calamity was averted, an
it was discovered an earnest desire
part of the members to sink their p
views and differences and join in t
spirit which had arisen from the w
to recognise that we had greater
than we had realised hitherto.

The President (Mr. Radcliffe)
responding, said that the increased
materials, of wages, war risk ins
and the irksome and not alt
necessary by-laws of some corpo
induced a serious diminution in the
of building, whilst war finance wo
bably result in restrictions upo
authorities, which would deter the
embarking on new undertakings
magnitude. This also would refl
the building trade.

Mons. Poire, of the French Co
and Mons. Zwaab, of Brussels, re
to the toast of "Our Allies."

The Society of Engineers (Incorp

Mr. S. Cowper-Coles, M.I.M
M.I.E.E., has been elected a vic
dent of the Society of Engineers (I
rated), thus filling the vacancy ca
the death of Mr. T. E. Bower las
and Mr. Burnard Geen, A.M.Ins
has been elected a member of co
the place of Mr. Cowper-Coles.

'AR OFFICE TIMBER PURCHASE.

he House of Commons last Thursday, on the motion for journment of the House,

W. Young called attention to the arrangements made by ment Departments for the purchase of timber. He it it must have been made plain to the Government that nole matter deserved the most serious attention. The ing to be done was to decide who was responsible, and d that the main responsibility rested with the War Office. ain reason given for the selection of Mr. Meyer was that merchants had shown a disposition to squeeze the nment. Many timber merchants would have been glad he business for very much less. A committee of business ould be appointed at once with full powers to advise and udgment upon contracts entered into by Government tments. He read a letter from a timber broker which l that the customary rate of commission was 1 per cent.

H. Baker said the question of responsibility as between overnment Departments was relatively small and unim- t—(cries of "No!")—but as the hon. member had thrown doubt on the subject he would restate the position in to responsibility. The War Office came into the trans- at the beginning and at the end. At the beginning they the Office of Works for advice, and having received a tion that they should be relieved of the task of timber , they accepted it, and the whole of the arrangements arried out by the Office of Works. They came into it at the end, in that they received the timber, and on that ld only say that it had been delivered quickly and was d quality, and the War Office had no objection to the which the contracts had been executed. The War having agreed that the Office of Works should act for n the matter, might be considered ultimately responsible, was a responsibility which they cheerfully accepted.

J. F. Hope said that in times like this mistakes must arise, but when they did it was the duty of the House nd them as such and take steps to prevent their recur- The system by which payment of a commission two- half times as much as the custom of the trade allowed together wrong. At least the commission under this ct would come to £35,300, which was three years of a hancellor's salary or the salary of six Prime Ministers.

. Markham said that any old-established firm of timber would have helped the Government without charging single penny, and there were numerous firms who would een glad to do the work for £2,000 per annum to cover tanding charges.

Beck told the critics of the contract that he was autho- by the First Commissioner of Works to say that if any ss men in that House cared to visit the department every of the transaction would be open to their inspection. vould then be able to judge for themselves whether there ything the least suspicious or doubtful in the case. The ommissioner and the Board took the whole responsibility. he House had to bear in mind was that when the bargain ade a very real and pressing crisis had arisen, and that estion was only one of the innumerable problems with the Government were faced. This was the situation at e. Many troops were under canvas, and it was abso- necessary that they should be hutted and that timber for rpose had to be obtained. He was very sorry that he, h error, misled the House the other night, when he of 500 inquiries having been made. But 200 firms were ched, and a thousand quotations of timber were obtained. ffice of Works formed the judgment that prices were very high, and that the supply of timber was limited. then that Mr. Meyer came on the scene. Before finally ng Mr. Meyer's suggestions, the Office of Works con- various alternative methods, including the appointment epresentative committee, but it was felt that time was t such a scheme. As regards the commission paid, the tion was not merely a buying transaction. It was one anging delivery of the timber in very difficult circum- . There was, he claimed, a prima facie case for saying e Office of Works saved the country money by employing eyer. Before making reckless charges hon. members to have informed themselves of the facts of the case. ad been made use of as tools by men who were annoyed ng disappointed of making big profits. The Office of admitted that the sums paid to Mr. Meyer were large, sums saved to the country by Mr. Meyer's services were ly larger. As regards control, there was really no time lge in all the technical safeguards which in peaceable ought to be observed, but the contract was so drawn that contractor did anything unbusinesslike or was exorbitant d be cancelled at once.

House then adjourned.

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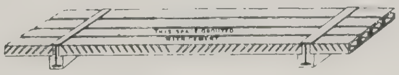

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THE question of the cost of Advertising is governed entirely by the circulation of a publication. The prices for small Advertisements enumerated below are framed upon the lowest possible basis in order to allow the use of the columns of the Journal for "Wants," &c., at a figure well within the reach of everyone.

Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

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4 lines (about 28 words) 1s. 6d.; 3 insertions, 3s.

ARCHITECT'S junior assistant (17) desires London engagement; neat draughtsman; knowledge of construction; typing, etc. Salary to commence about 15s. per week.—H. S., 53, Aytoun Road, Stockwell, S.W. 9178

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Death.

MOWBRAY.—On February 24 at 44, Beechcroft Road, Oxford, Alfred William Mardon Mowbray, aged sixty-five years.—R.I.P.

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stores, stabling, residence, etc.,
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ness, will be sold by auction at the W
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borough Street, London, W. Auctionee
and Fuller, 70, Queen Street, Cheapsi

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tained at the undermentioned addres
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the SECRETARY, H.M. Office of Wo
Storey's Gate, London, S.W., and en
directed.

H.M. Office of Works, etc.
February 23rd, 1915

Competitions Open.

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CITY OF BRADFORD.

COMPETITION.

The Bradford Corporation invite C
TIVE DESIGNS for the RE-PLAN
STREETS in the Central Area of th
Bradford. Mr. Reginald Blomfield,
act as Assessor. First prize £500, sec
£300, and third prize £200.

Particulars may be obtained on ap
to the undersigned, accompanied by
of £1 1s. 0d., but in case the particu
plan are returned within ten days
ceipt thereof then the deposit of £1 1s
be returned

FREDERICK STEVENS, Town
Town Hall, Bradford.
19th November, 1914.

METROPOLITAN BOROUGH OF S

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The Council invite Architects to
designs in competition for the above,
appointed Mr. Henry T. Hare, F.R.I
act as their Assessor.

Conditions of competition may be
from the undersigned on and after
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guinea, which will be refunded on su
of a bona fide design, or the return of
ditions within fourteen days of their

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Town

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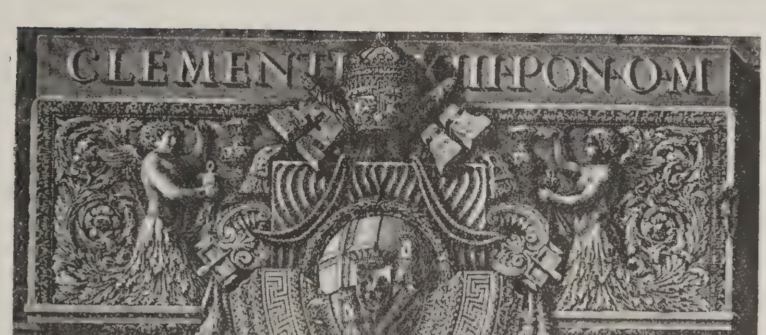
February 20, 1915.

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 10, 1915. Volume XLI. No. 1053.

No. 126.


CLEMENTI XIII PON O M

Beatiſsime Pater

Beneficii loco eſse duco, Beatissime Pater, quo cetera cumulas, quæ in me plurima contulisti, quod, præter aliud non ita pridem Tibi nuncupatum, tria hæc etiam opuscula Sanctiſsimo Nomini Tuo inscribi a me pateris; ostendis enim quam benignus in omnes sis, nec injucundum Tibi esse, si quid a tenuioribus etiam hominibus fiat, quo observantiam erga Te suam, gratumque animum testatum velint. Sospitet Te Deus, Beatissime Pater, diuque Ecclesiæ suæ bono servet incolumem.

Sanctitatis Tuæ

(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 10, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1053.

EDITORIAL.

IT is with unfeigned pleasure we note the announcement that the Société des Architectes Diplomés par le Gouvernement has conferred upon the President of the Architectural Association the right to be a Corresponding Member during his term of office, and that Mr. Gerald C. Horsley, F.R.I.B.A., has been also elected a Corresponding Member. In the present circumstances, these international courtesies obviously assume a far deeper significance than any that could be attached to them in times of settled peace. They may be taken as tokens that, their friendship having been cemented with blood, the two countries will henceforward sedulously cultivate, in every possible way, the new spirit of mutual respect and sympathetic regard that has been engendered by their active alliance for the defence of freedom and the suppression of barbarism. At the outbreak of the war, the Germans promptly denied that we were as a race akin to them, and they have since given us abundant reason to feel proud of the repudiation. We take it as a gratifying compliment, and are confident that, unlike most emanations from Germany, it has a solid basis in reason and fact, to say nothing of ethics and psychology. That in spirit, at all events, we are much more nearly akin to the French has been always clearly evident in the constancy, consistency, and sincerity of our admiration for their art, and especially for their architecture. In this light the honour accorded to the Architectural Association is of good augury for that closer intimacy between French and English architects which should be not the least considerable of the more beneficent consequences of the war.

* * * *

Everyone who knows how zealously and genially Mr. Gerald Callcott Horsley has served the professional organisations will be delighted at this recognition of his value. He was President of the A.A. from 1911 to 1913, Member of Council of the R.I.B.A. 1913-14, and Hon. Secretary of the Board of Architectural Education in 1913. According to "Who's Who in Architecture," he was born in 1862, his father being John Callcott Horsley, R.A.; was articled to Norman Shaw, R.A., was R.I.B.A. Owen Jones student in 1887 and 1888, and commenced practice in the latter year. Among his chief works as an architect are St. Paul's Girls' School, Hammersmith; offices for the Universities' Mission to Central Africa, in Dartmouth Street, S.W.; two or three churches in Staffordshire; several country houses; some City business premises; and work on several stations for the London and North-Western Railway. He is a member of the Athenæum and Arts Clubs.

* * * *

A ludicrous instance directs attention once again to the vagaries of the system upon which London district
surveyors are remunerated. A district surveyo
inspected a crack in a ceiling claimed what se
to the house-owner a disproportionately large fe
is never wise to resist the demand of a district sur
unless the resister is prepared to make sacrifices
public interest; for the surveyor has a disconc
knack of being almost invariably within his
rights. It turned out that his position was un
able with regard to this ceiling crack, anc
magistrate, while expressing his sympathy wi
house-owner, said there was no alternative to m
an order for 19s. 6d. and 23s. costs. It would
extensive ceiling crack that could not be repair
less than half the district surveyor's fee.

* * * *

To blame the district surveyor in such cases
be manifestly unfair. In drawing attention,
time to time, to the anomalies that beset this p
have always been careful to avoid the sli
suspicion of disparagement of a body of men w
singularly well equipped for their duties, an
fulfil them with scrupulous integrity. It is the
upon which they are remunerated that is o
attack—because it so often leads to anomalies s
that under notice; because, as demonstrated
Camberwell printing-office case some two or
years ago, it penalises improvements, and the
tends to prohibit them; because, in the hands
honourable men, it could be easily abused
because, in our opinion, the building industry
not to be burdened with these charges at all. Pr
we shall hear very soon what steps the London
Council are taking to put the district surveyor
a footing that will be more equitable all round, a
trust, more satisfactory to the district sur
themselves.

* * * *

Any movement promising stimulus to the at
rather imperfect realisation of the nature and
of the trade war with Germany, Austria, and T
deserves full encouragement. We therefore
record very sympathetically the efforts in this di
which are being made by the Commercial Intel
Branch of the Board of Trade. From the "Ex
Meetings" which are now being held in Che
with the object of bringing buyers into touc
manufacturers, important practical results m
confidently anticipated. Actual samples of
hitherto imported from enemy countries are ex
and British manufacturers are afforded facilit
conversation with the merchants who forme
ported such articles. Manufacturers, therefo
able to see what is wanted, and to learn at firs
such necessary business information as only the

part. Such contact between the agents of pro- n and distribution should be of incalculable advantage, and should by no means end with sent exigencies, nor be confined to London.

* * * *

of the present position there may yet grow that horough organisation of industrial and com- l activity which, as Sir William Ramsay has so ly warned us, is a vital condition of national ce. If it is rhetorically true that our wars are n the playing fields of our public schools, there n more force in the claim that the real basic e for national existence is won in the workshop, tory, and the counting house. Already our icturers are giving excellent proofs of a flexi- hat had been until now regarded as the least of tional virtues. It had been the constant com- of our consular agents abroad that British icturers and agents were sacrificing enormous inities for business by their deliberate refusal to hemselves to the requirements of any particular . They suffer from rather an excess of sturdy independence. Conscious of supplying a good at a fair price, they are apt to adopt a "take-it- e-it" attitude which opens the door to the more nodating foreigner, whose chief aim is to meet y possible way the whims and wishes of the er.

* * * *

t is equally damaging, the British trader has not n wholly disabused of his confidence that good vill sell themselves without pushing or publicity: nmon result being that inferior articles, well sed, set at naught the doctrine of the survival of est by crowding out those that are a good deal out are neglected simply because the public have opportunity of becoming acquainted with their This folly has been clearly exemplified in so nstances that our foreign competitors are wont it us on crass ignorance of what they call the of selling. Our manufacturers, they admit, are tive in producing the goods, but mere novices nethods of getting rid of them. Seldom a day, ver a week passes but we are asked by some ct or builder where such and such an article is ot, a common addendum to the request being, is now never advertised, as it used to be, I am t is no longer obtainable, and I have been using itute which I know where to get; but I should refer the other, if only I could specify it with nfidence that it was still on the market." They igs differently in America, where the traders' e is to leave the architect no chance of doubting r the goods are still being produced. That this mportant matter in which British traders are o seek has been recognised by the London Council, who, we are pleased to note, have ed a series of lectures, given at one of their ercial institutes," on the science and art of sing. We are glad of this opportune if tardy tion that, in the great commercial war in which intry must now engage with all the strenuous- id resource which she can command, effective sing is a vital factor.

* * * *

ie "Exchange Meeting" held last week, it was ible, as upon a previous occasion, that the goods exhibited were often of inferior grade racter—such, indeed, as our own manufacturers not care to handle. The class of articles ed included heating and cooking stoves, locks, iasps, hinges, bells, chains, screws, bathroom etc.; and it was again made clear that, as an ty on the subject has stated, in all the higher of hardware, such as brasswork fittings and art ings, we easily hold our own. Some of the goods were recognised as having been originally of British design. Thanks to cheap labour, the Germans have been underselling us in our own markets with copies of our own designs! No doubt the next "Exchange Meeting," which will include a display of designs relating to wallpapers and tiles, will tell the same story of pilfered patterns and sweated labour. So far, it would seem, therefore, that the only problem which confronts our manufacturers is that of cheaper production without degradation of quality. It is obviously one that is difficult of solution, but we are confident that our manufacturers will be found equal to the occasion. They will be afforded ample opportunities for studying the German and Austrian examples, which are to remain on view during the next few weeks.

* * * *

It was suggested, in a lecture delivered by Mr. R. W. Horn, A.R.I.B.A., before the Glasgow Royal Technical College Architectural Craftsmen's Society, that a belt of land round Glasgow could be laid out to advantage "to accommodate a very large population housed on the cottage principle." This revives what was once a vexed question in Scotland, where the townsfolk defend very vigorously the tenement system which, south of the Tweed, is being so generally abandoned in favour of cottages. In any endeavour to account for this discrepancy, it is rather important to remember that our tenements differ as much from theirs as their cottages from ours, and that the inferiority of their cottages is as remarkable as the superiority of their tenements. To the mind of the average Scotsman, the cottage stands for a symbol of an abject poverty that is not always redeemed by so poetical an atmosphere as that created by Burns in his "Cotter's Saturday Night." Where it is not a mere hovel, comprising simply "a but and a ben," it is apt to be the kind of stunted structure, with an outside staircase leading to the upper storey, which one frequently sees in the fishing villages. It is poky, inconvenient, and unhygienic.

* * * *

On the other hand, the Scottish tenement commands a good deal of respect by its size, the inoffensive character of its design, the excellence of its masonry, the convenience of its planning, and by what may be described without exaggeration as the superlativeness of its plumbing. Big blocks of stone in a small cottage put it hideously out of scale, and in Scotland there is a general prejudice against brickwork, which, nevertheless, as having the greater "breathing" capacity, is a more hygienic material than stone. On the whole, we should like to see Mr. Horn's project materialise, the moral and material advantages of "the cottage principle," as he quaintly calls it, being, we think, established beyond question.

* * * *

Some slight misconception seems to have arisen as to the bearing of a remark of ours in the issue for February 24, p. 86, on the circulation round the provinces of exhibits from London museums. A friend has thought it necessary to remind us that "provincial centres *do* receive loans from the South Kensington Museum." We were quite cognisant of the fact. Our point was that this excellent practice has the woeful limitation that nothing which is really precious is at all likely to be subjected to the risks of such an itinerary, which is therefore inapplicable to anything that is of much more value and interest than plaster casts and photographs.

* * * *

The publication of a volume of sketches by Samuel Prout as the winter number of the "Studio" gives many architects their first adequate opportunity of assessing his value as a limner of architectural subjects.

Our own impression is that Ruskin did him a grave disservice by overpraising him, as in that extravagant passage from "Modern Painters": "His renderings of the character of old buildings, such as that spire of Calais, are as perfect and as heartfelt as I can conceive possible; nor do I suppose that anyone else will ever hereafter equal them."

* * * *

Ruskin's great fault, and the one that has been chiefly instrumental first in building up and finally in overthrowing his own reputation, as well as that of so many of his *protégés*, is his uncompromising dogmatism. There is no midway with him—he is always in extremes; and, by the irony of fate, his decisions are being reversed seriatim, until one has come to make the same use of Ruskin as Dr. Samuel Rawson Gardiner made of Froude. "Now," Dr. Gardiner once said in our hearing, "Froude had a wonderful historical instinct, which led him unerringly to the wrong conclusion whenever there was the slightest possibility of making a mistake. So whenever I am in doubt upon a knotty point, I always turn to Froude for help. For one can always feel the utmost confidence that of two possible views the one taken by Froude is the one that is wrong." And so it is with Ruskin. But while there is nothing in this volume to justify his laudation of Prout, neither does it supply much warrant for the rather scathing attacks the Ruskin's fulsome praise has provoked. Prout was just a respectable plodding mediocrity, and the sixty-five plates collected into this volume contradict rather than support Ruskin's preposterous claim for him that his renderings of old buildings are "heartfelt." From the architectural standpoint their chief value is that of fairly faithful records or transcripts.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper. Every communication must bear the name and address of the sender.

Ulster Society of Architects.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—My attention has been drawn to an article appearing in your Journal under date February 10 referring to the School of Architecture in Belfast. The article, taken from the annual report of the Council of the Ulster Society of Architects for 1914, in its condensed form appears to give the impression that the Board of Architectural Education of the Royal Institute of British Architects had approved of the school examinations being accepted in lieu of the Intermediate Examination of the Institute, whereas my report deals with the Board's approval of the school for the preparation of students for the Institute examinations.

I shall be obliged if you will kindly put this right in your next issue.

T. W. HENRY, Hon. Secretary,
Ulster Society of Architects, 9, Howard Street,
Belfast.

Attendance on Sub-Contractors.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—On reading the memorandum issued by the Surveyors' Institution published in your issue of February 17, I was struck with the difficulty underwhich quantity surveyors labour in dealing with this item.

In important contracts, provisional sums are sometimes provided for heating without specifying what system of heating is to be adopted, thus leaving the surveyor in the dark as to the amount of cutting chases, etc., necessary.

The memorandum of the Surveyors' Insti recommends the surveyor to give an indication extent of the attendance, stating: The number of for pipes, etc., the number of pipebrackets, etc., fixed, the chases for pipes, etc.; but this is only po where a plan and specification (or either) of the h system is supplied to the quantity surveyor. The applies to provisional sums of electric lighting, etc.

The custom here [Dublin] is to include the water supplies in detail in the "Internal Plumbe that question does not arise here.

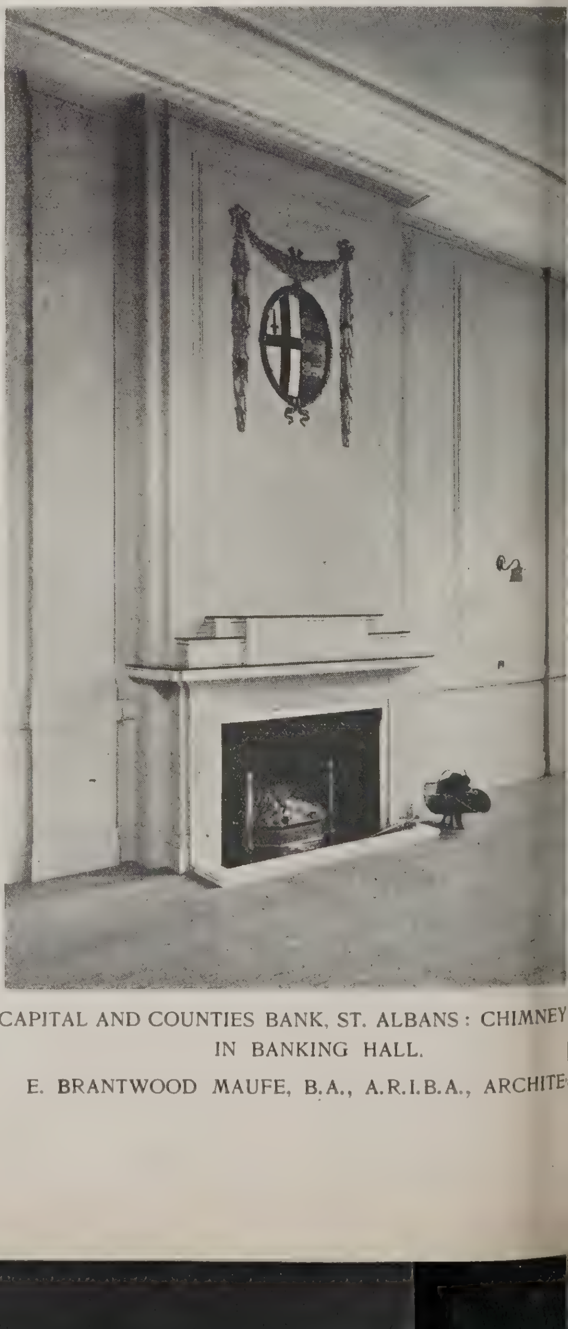
I shall be glad to get some expression of opini the phase of the question which I present to yo which is not covered by the memorandum o Surveyors' Institution except "when sub-contrac of minor importance."

58, Dame Street, Dublin. JAMES MACK

THE PLATES.

Capital and Counties Bank, St. Albans.

IN designing the bank which forms the subject double-page working drawing and of the shown on a further plate and in the text, s regard was had to the fact that it would stand St. Albans Town Hall, a fine building des by the late George Smith, and completed in To what extent the two buildings stand in pathetic relationship the one with the other m seen on comparing the perspective view of the



CAPITAL AND COUNTIES BANK, ST. ALBANS: CHIMNEY IN BANKING HALL.

E. BRANTWOOD MAUFE, B.A., A.R.I.B.A., ARCHITE

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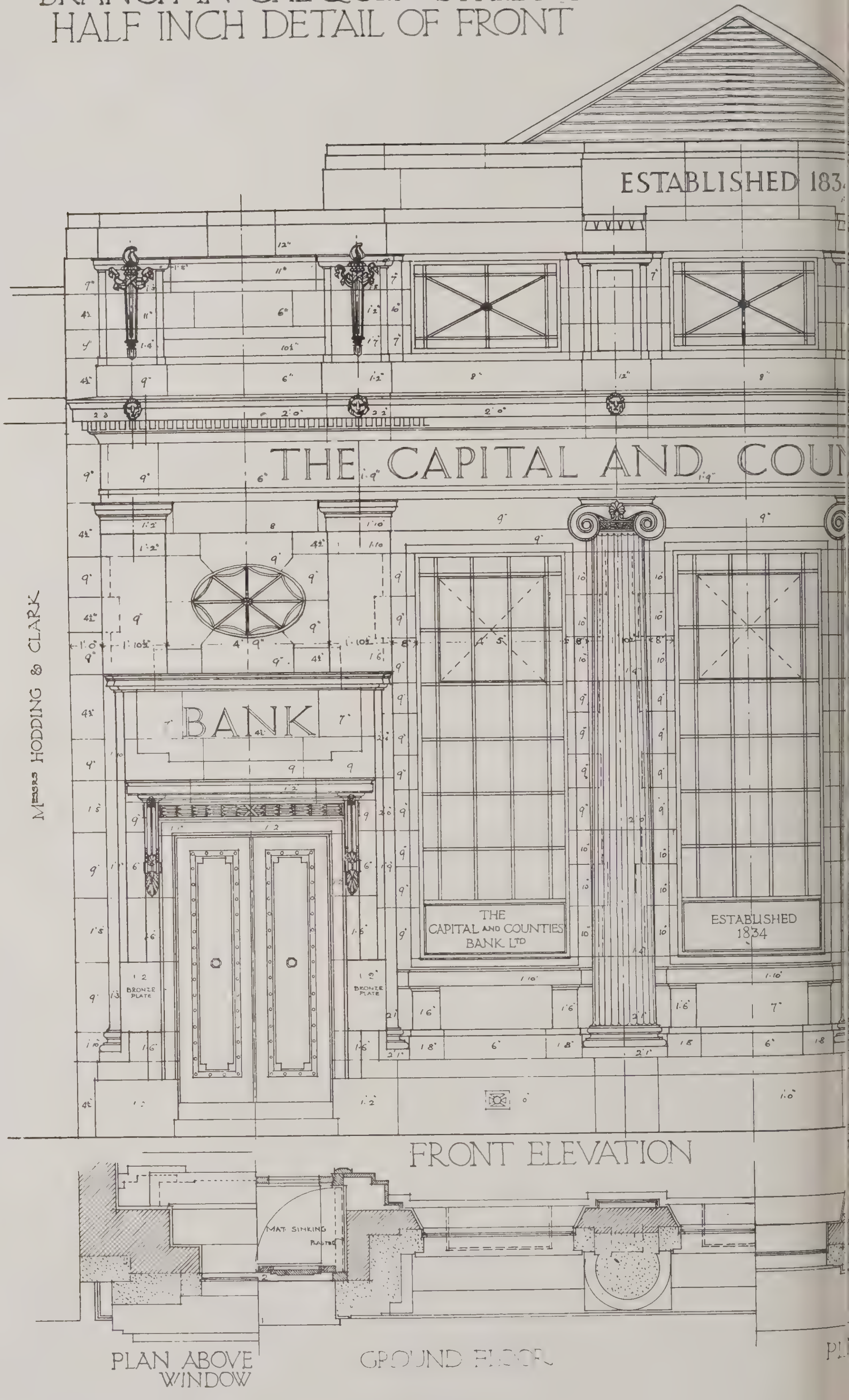
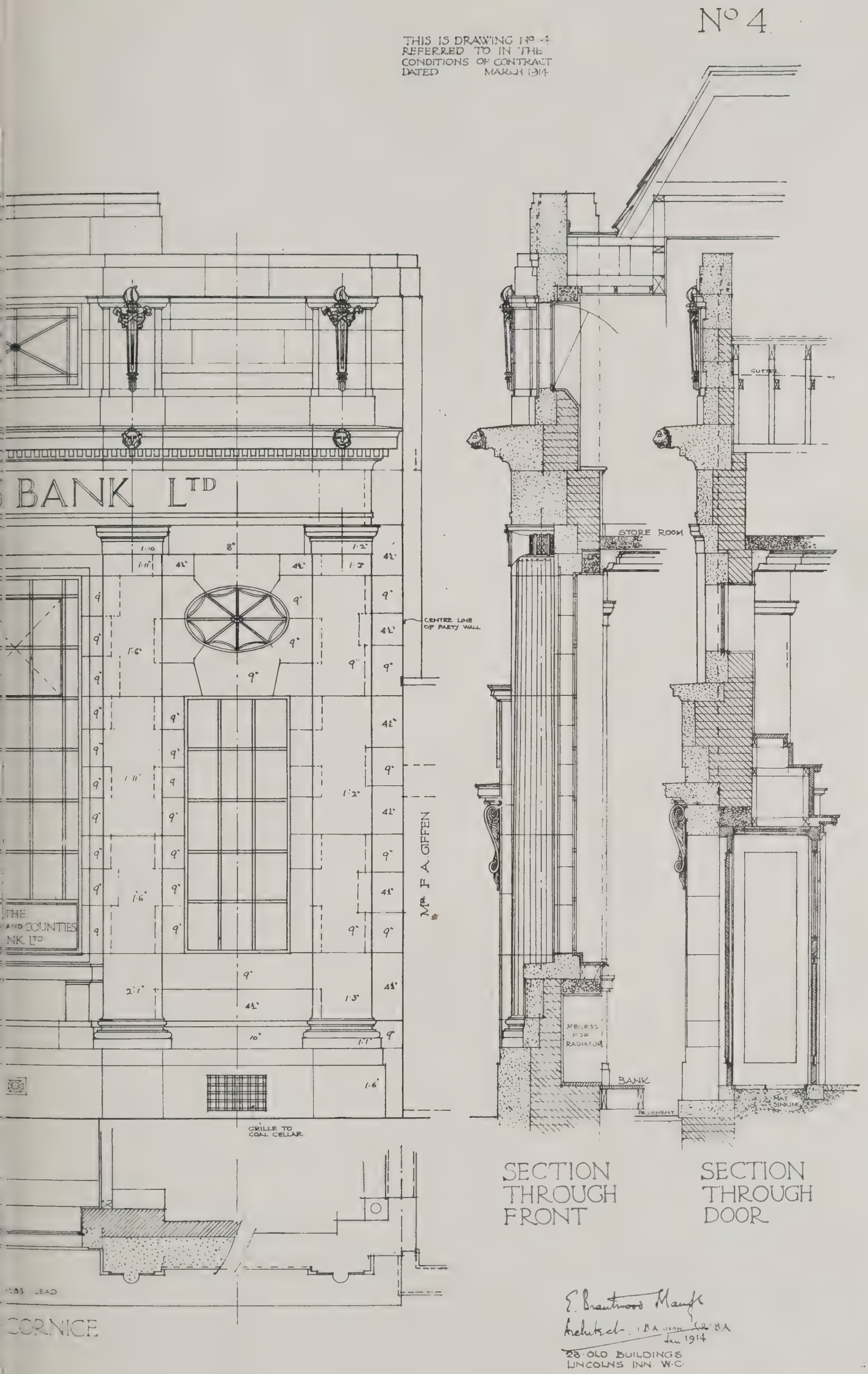
OF THE
UNIVERSITY OF ILLINOIS
26 MAR 1915

THE CAPITAL & COUNTIES BANK LIMITED
BRANCH IN CHEQUER STREET ST ALBANS
HALF INCH DETAIL OF FRONT



WORKING DRAWINGS BY WELL-KNOWN ARCH

E. BRANTWOOD-



II.). IV.—CAPITAL AND COUNTIES BANK, ST. ALBANS.

R.I.B.A., ARCHITECT.

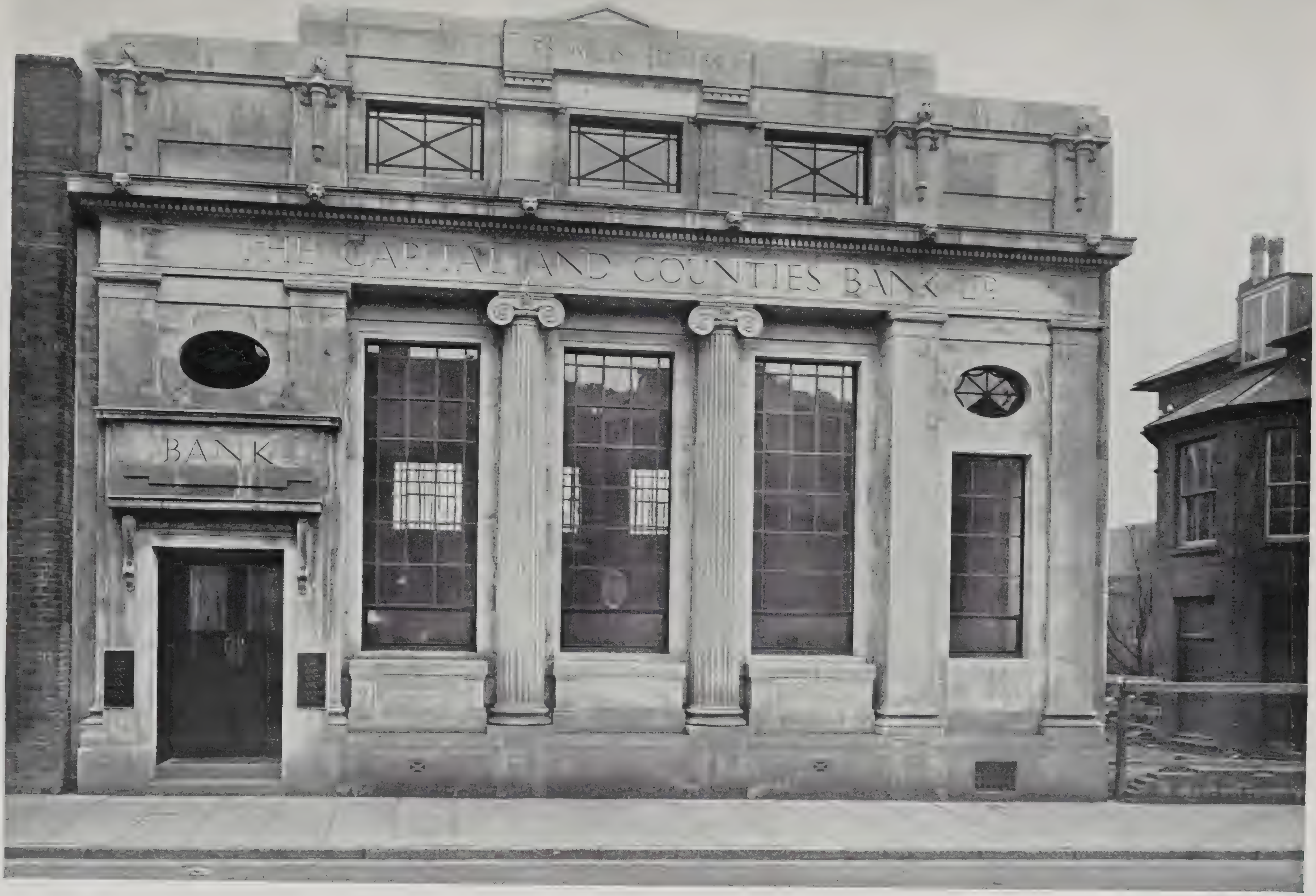


Photo: R. L. Warham.

CURRENT ARCHITECTURE (SERIES II.). XII.—CAPITAL AND COUNTIES BANK, ST. ALBANS.

E. BRANTWOOD MAUFE, B.A., A.R.I.B.A., ARCHITECT.

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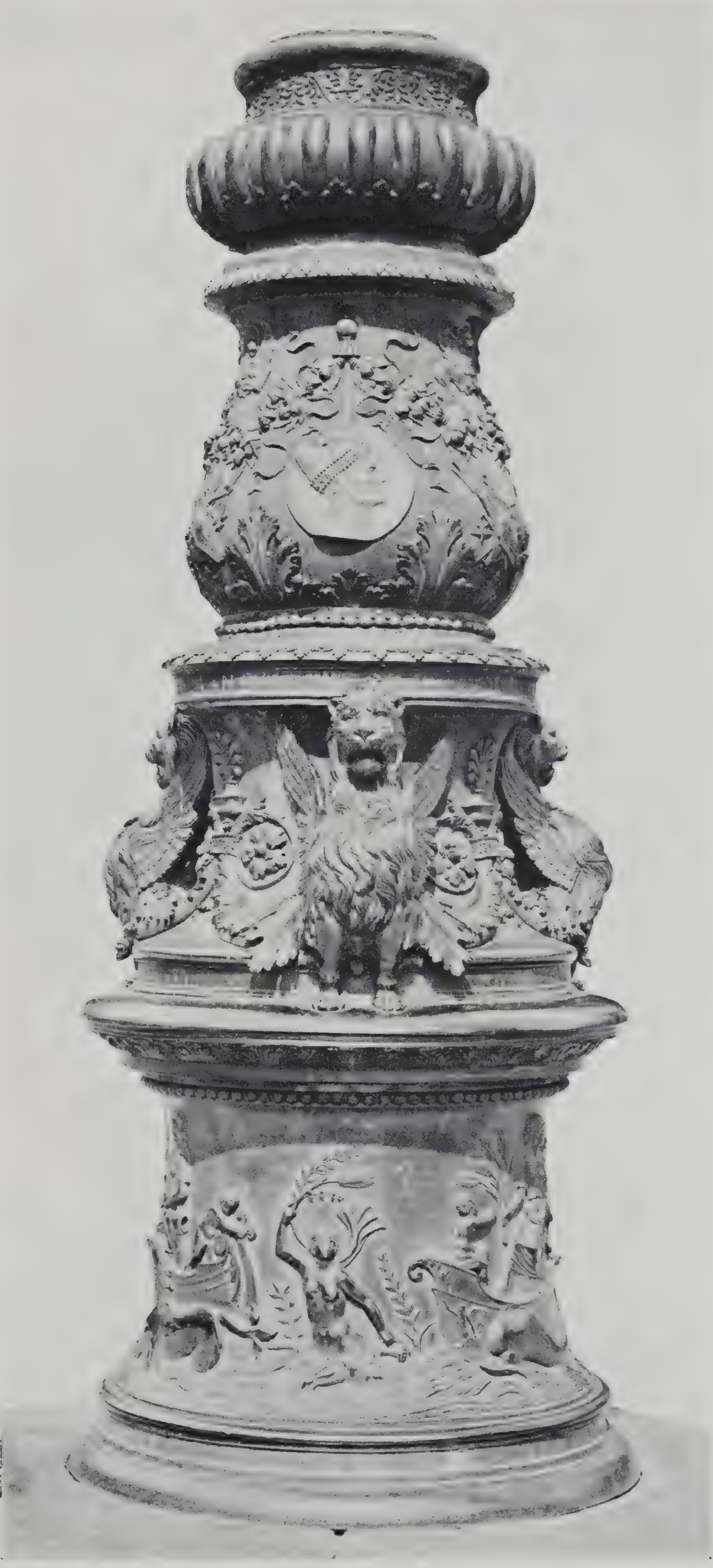
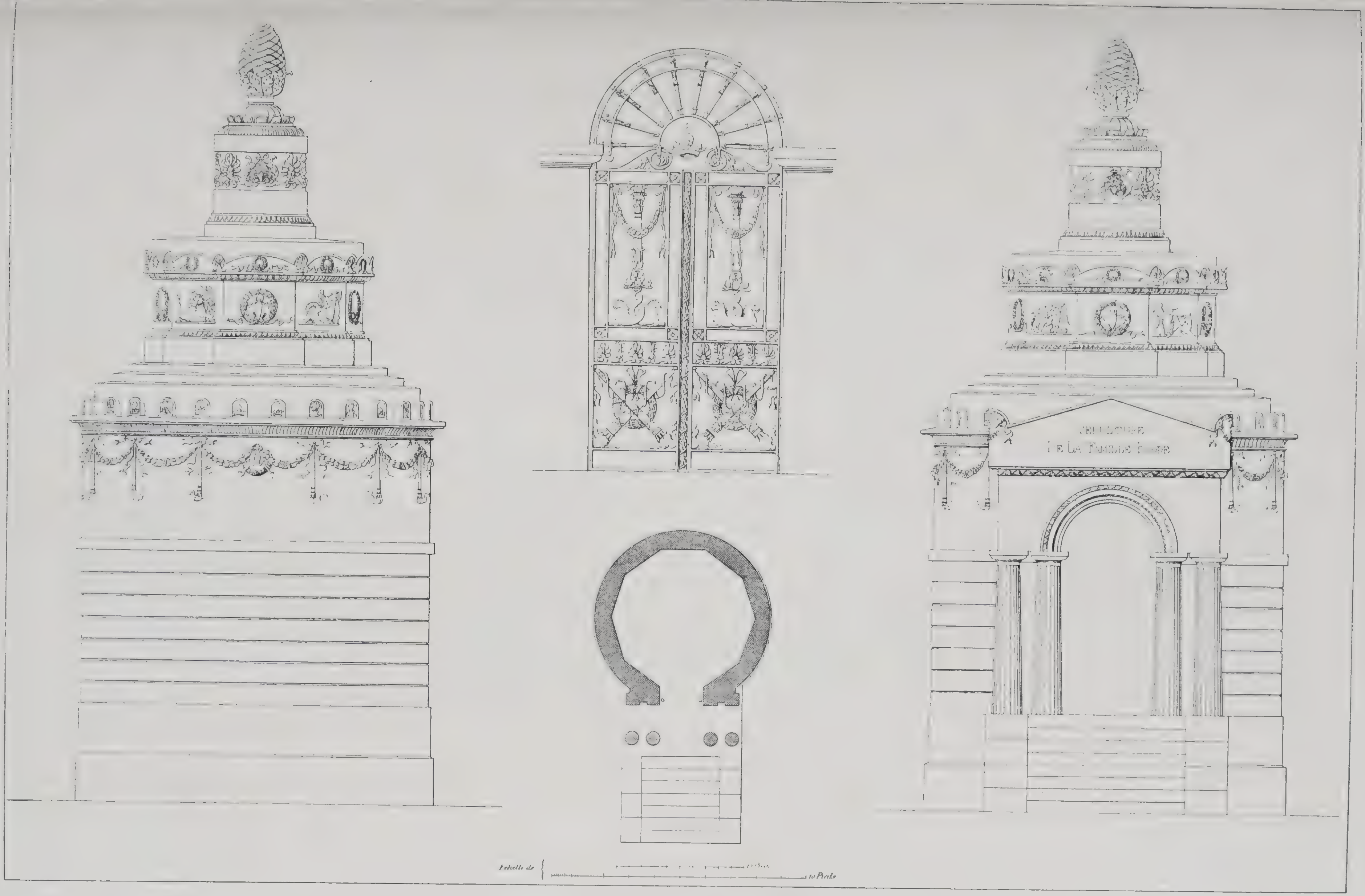


DETAILS OF CRAFTSMANSHIP. IX—BRONZE MAST STANDARD ON THE PIAZZA OF ST. MARK'S, VENICE.
BY ALESSANDRA LEOPARDI.



FRENCH MONUMENTS. VII.—BOODE MONUMENT IN THE CEMETERY OF PÈRE LACHAISE, PARIS.

SANTY, ARCHITECT.

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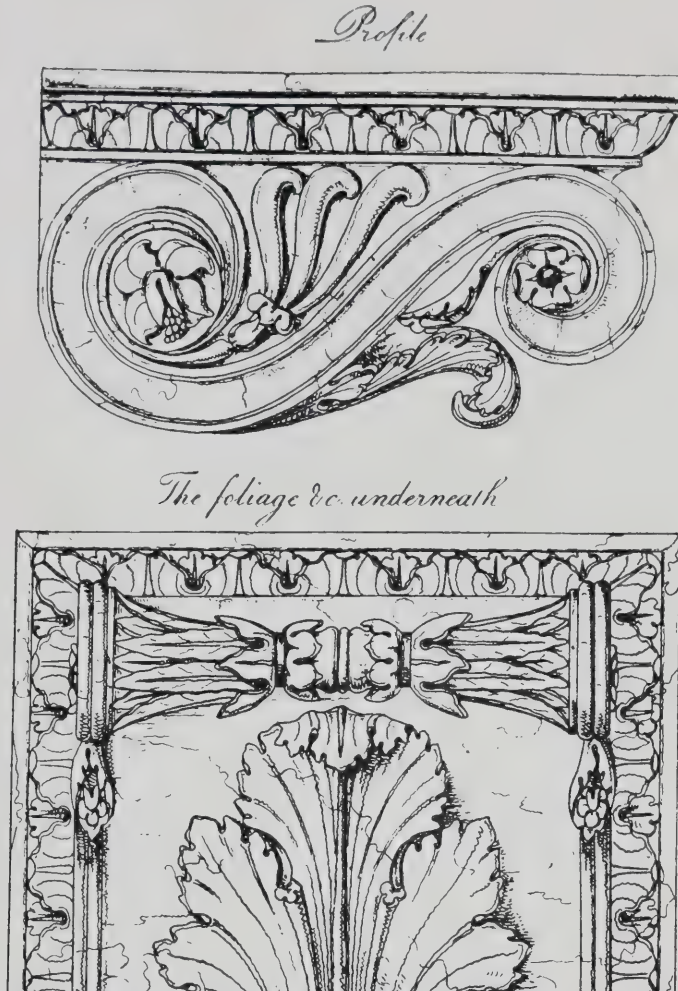

DRAWINGS OF ROMAN ORNAMENT. IV.—MARBLE CONSOLE IN THE VATICAN MUSEUM.

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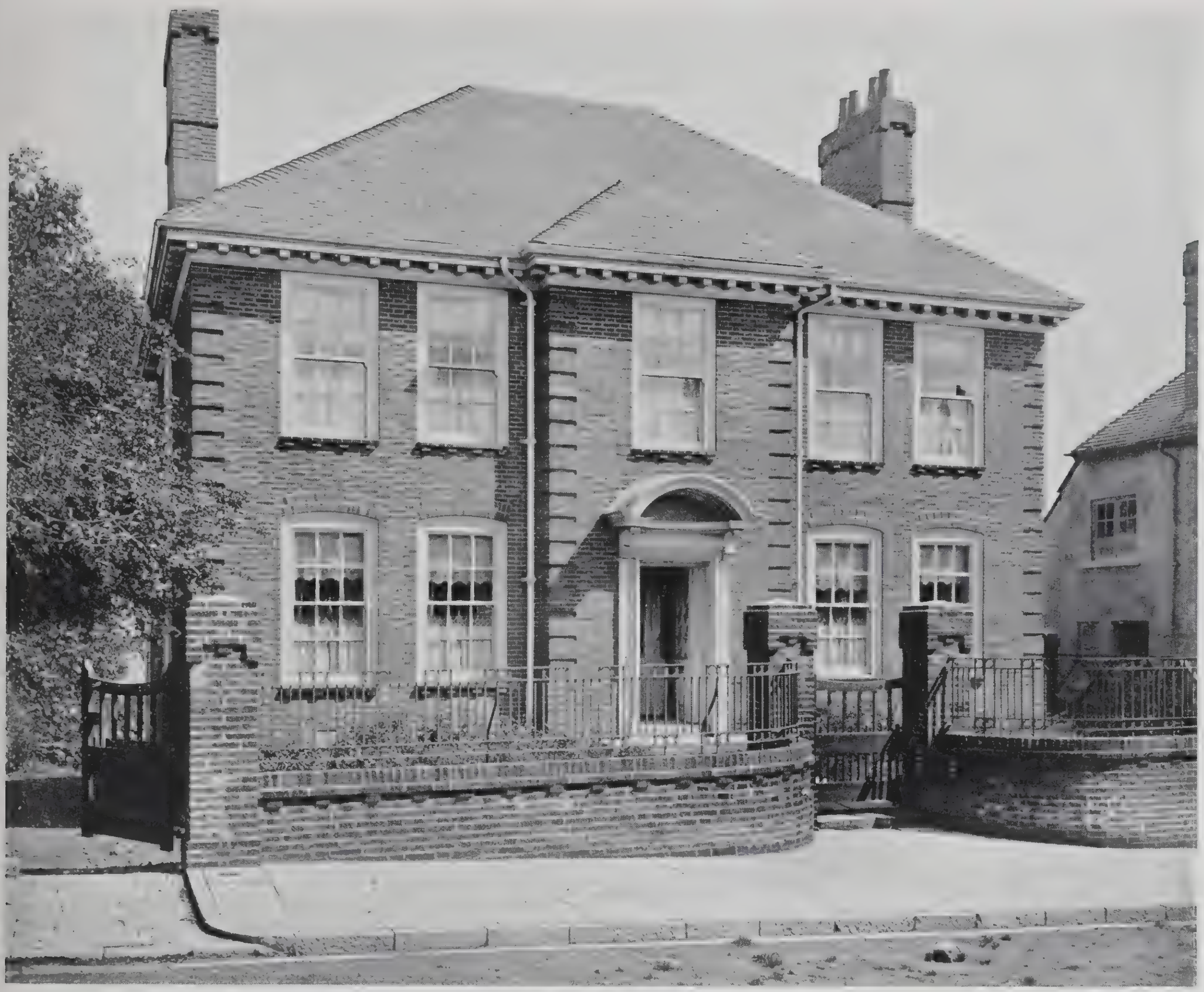
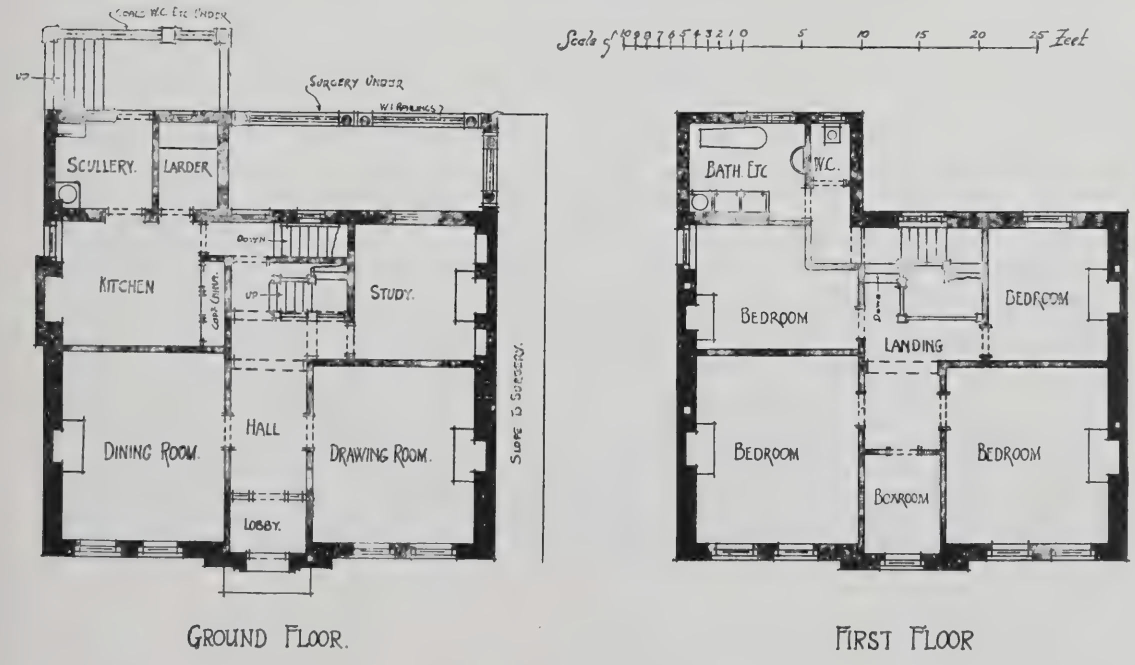
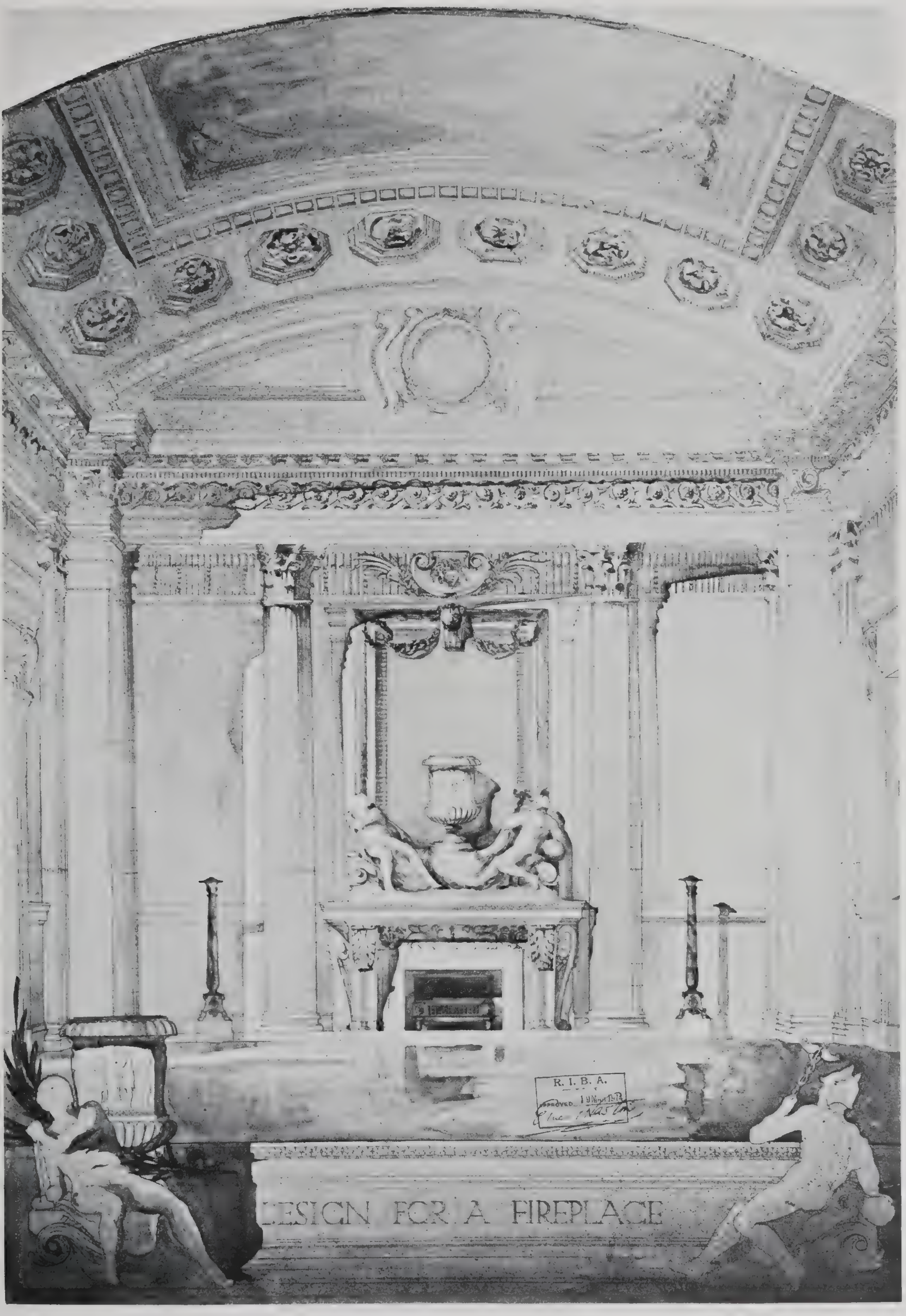




MODERN DOMESTIC ARCHITECTURE (SERIES II.). V.—HOUSE AT MORRISTON, SWANSEA.

J. C. G. DAVIES, ARCHITECT.



STUDENTS' DRAWINGS. XL.—DESIGN FOR A CHIMNEYPIECE.

BY R. A. DUNCAN.

h the illustration of the town hall given in our issue December 24, 1913. Mr. Maufe's building, of which frontage is in Portland stone, comprises a banking l 38 ft. 3 in. by 27 ft. by 17 ft. high, an armoured crete strong room 22 ft. by 13 ft., managers' m, waiting-room, store-room, and lavatories. ssrs. Miskin and Son, St. Albans, were the tractors; the mahogany fittings being made Messrs. Elliott and Son, Reading, and the ving done by Messrs. Aumonier and Son, ndon, all the details being designed, and work superintended, by the architect, Mr. E. ntwood Maufe, B.A.Oxon., A.R.I.B.A., of Lincoln's , W.C.

Bronze Mast Stand. St. Mark's, Venice.

lessandro Leopardi, to whom are attributed the e bronze mast stands in front of St. Mark's, was same eminent worker in bronze who, in 5, completed what has been held to be most magnificent equestrian statue in existence, of Bartolommeo Colleoni, which, however, was lelled by Verrocchio, Leopardi merely casting it designing the pedestal. Leopardi lived in the day of Venetian excellence in bronze-work. Before time, the best metal-work was done by foreigners, of native origin being curiously coarse and crude. is day, and in the succeeding century, the metal-k of the city owed much to a large colony of lem craftsmen who seem to have settled there, and greatly influenced the character of all the work heir period. From these mast stands the banners e Republic were unfurled.

Boode Monument, Père Lachaise.

Santy, who, in designing this stone monument to Boode family, had imposed upon him the demand a kiosk existing somewhere in Holland should supply the *motif*, has certainly succeeded in investing the monument with a gravity and dignity that tend rather to disguise than to recall this odd condition. M. Plantar executed the sculptures. The gracefully decorated door (shown in the middle of the plate) is of cast-iron.

Marble Console, Vatican Museum.

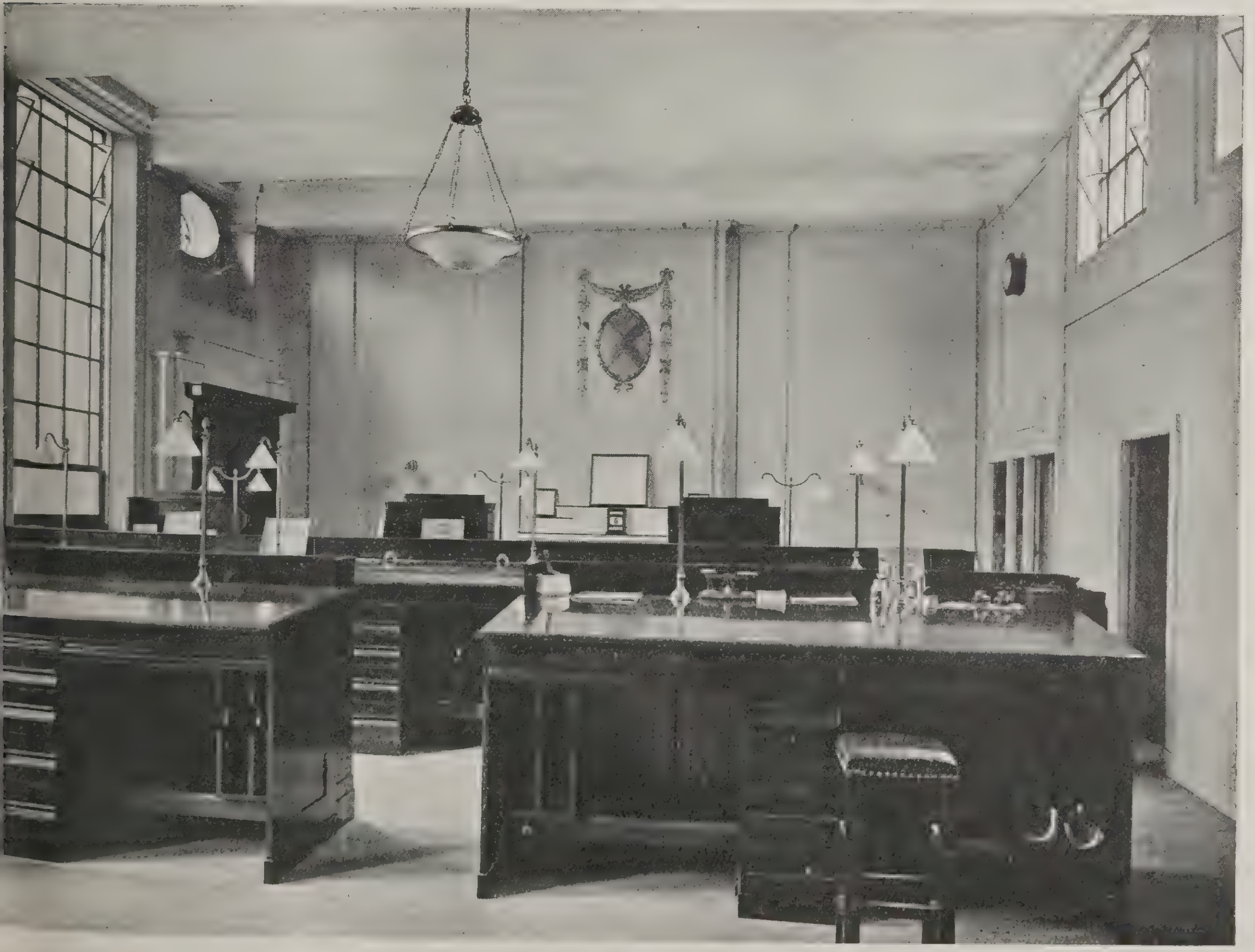
All the rugged strength that is proper to a console is expressed in this example, in which, however, mere substantiality and power are mitigated, but not to the point of contradiction, by the decorative treatment to which the Romans knew well how to give organic character.

House at Morriston, Swansea.

Of this house, which was built for a doctor of medicine by Mr. J. C. G. Davies, A.R.I.B.A., the exterior is faced with 2-in. sandfaced bricks of a brown shade, with white cement joints, and the roof is covered with cherry-red tiles. The woodwork is deal, painted white. The site presents a frontage of 60 ft., but a motor drive and a side entrance to the surgery had to be provided. Messrs. Thomas and Cones, of Morriston, were the contractors.

Design for a Fireplace.

This, like many another example of work coming recently from the Architectural Association School, seems to render superfluous the generally excellent advice that students should not make a fetish of mere facility in draughtsmanship. Dexterity is here manifest without being at all aggressive; it is subdued to what it works in, is made duly subservient to higher things. Quite evidently some of the architectural schools, and among them most certainly the A.A. School, have solved the problem of turning facility to true account as a means to an end; and Mr. R. A. Duncan's drawing may be regarded as a case in point.



CAPITAL AND COUNTIES BANK, ST. ALBANS. E. BRANTWOOD MAUFE, B.A., A.R.I.B.A., ARCHITECT.

SOME SALIENT FACTORS OF THE COTTAGE PROBLEM.*

BY THOMAS POTTER.

THE question of how to house the farm labourer at a reasonable cost has reached an acute stage. Books have been written, plans have been published, and meetings have been held, all with the one object of attempting to solve the enigma of how to build labourers' cottages that can be let at an economic rent.

I am not going to exploit the feasibility of the £100 cottage. This has been done by many during the last fifty years, but only the exploiters seem to have solved the problem, and then only in their minds—not in practice. I tried building pairs of cottages half a century since, the plans of which gained a £50 prize for cottages to cost £200 a pair: but whether built of brick, stone, or concrete, the result was always the same—nearly £350. Readers of and listeners to the exponent of the cheap cottage are often misled by the bare statement that a good cottage can be built, or has been built, for £100 or some other fabulous sum, and what I have just stated is a fair example of the result when attempts are made in that direction.

Government Loans.

The Local Government Board intend, it is said, to loan money for the erection of cottages only on condition that they measure 10,000 cubic feet, and this is usually the measurement of good cottages, built in pairs or otherwise, provided by large landowners, but it is exclusive of outbuildings.

In this case, the £100 cottage will be entirely out of the running. The £100 has already given way to £150, and this promises in turn to become £200 as a minimum if building materials continue to increase in cost. I am afraid that Mr. St. Loe Strachey's laudable wish that means may still be found to provide a good country labourer's cottage for £100 will not be realised for many years to come, if ever.

By 10,000 cubic feet I am assuming that external measurement is meant, the height taken from top of foundations to floor level at 2 ft. and thence to half-way between wall plate to ridge, and that the height of rooms in all cases is 8 ft. from floor to ceiling. I believe the Departmental Committee of the Board of Agriculture in their report on small holdings took for the purpose of comparison 2 ft. as the height from floor level to top of concrete foundation, but I submit that if the concrete is made with cement 1 ft. is sufficient; at any rate, this has been my practice generally.

The way of arriving at the cubic capacity by taking half the height of the roof is, of course, incorrect, but it is a recognised method, and is a simple process in calculating and comparing measurements, roofs not always being of the same pitch.

The Question of Cost.

The Departmental Committee of the Board of Agriculture came to the conclusion, after examining a large number of witnesses, that £150 was the minimum cost of a labourer's cottage, and one of the committee has since stated that during their tour of inspection they found that in some cases the builders declined to build more for the same price, in others the builders became bankrupt, and others obtained gravel or sand near the site free which elsewhere would cost 5s. a cubic yard, but for which they allowed nothing in their estimates, and these cottages therefore could not be taken as examples of cost.

It is sometimes said that certain cottages have cost so much to build by contract. This statement may be correct, but it does not follow that it was the cost to the builder, which is quite another matter. Some small builders who are not adepts at quantity taking and estimating for new buildings arrive at the price in curious ways. On one occasion I asked a small builder who was not addicted to close calculations how he came to submit an absurd tender for some cottages, and his reply was that his brother knew a man who had built some very similar ones for the same money. Statements of cost must always be taken *cum grano salis* unless there is an absolute certainty and a proof of their correctness. On one occasion I was told of the low cost of certain cottages and was shown the prime cost statement of expenditure. I found therein slate and other materials absent, and was told that the cause for this had been inquired into and that they came from another job where they were not wanted and, having been already paid for, could not be charged again. The owner was unaware of this.

A large landowner and some time M.P. wrote to the "Field" that he had erected a large covered yard, the dimensions of which he gave, at an absurdly low cost, and I was asked if I could build a similar one at the same price. I could not, but wrote to the landowner asking if he would kindly supply me with some details of the cost. He replied that, unfortunately, when writing the letter, he was unaware that his steward had not charged for the timber, which was cut down on his own estate, nor for the carting, which was done by the estate horses.

Cubing the Contents.

The custom of calculating the approximate cost of buildings at so much per foot cube is at its best only a speculative method, and may be described as scientific guess-work. The cost of cottages only a few miles apart may be widely different. Some may be near a brickfield, quarry, lime kiln, sandpit, and railway station—an unusual combination, I admit—others may be distant from either, and this makes all the difference. The weight of bricks, lime, and sand for a pair of cottages approximates alone to 100 tons and stone to more. This shows what an important factor in cost haulage means, an item which, when cheap cottages are under discussion, is often altogether ignored. The result is that the cost cannot be standardised; it is a question of locality.

For cottages of an unpretentious character 4d. per cube foot seems to be the recognised estimate; and if we take the Board of Agriculture's view of the minimum amount of capacity which the Local Government Board may insist on in the case of loans—10,000 cube feet—the cost would be £333 a pair, to which has to be added the cost of the land, drains if any, fences and water supply, so that possibly a total expenditure of £400 would be near the mark.

Accommodation.

There is no great divergence of opinion as to the accommodation a labourer's cottage should afford, although more
to be considered necessary in the
than in the South of England, not
number of rooms, but in their are
the South the living room, or kitch
it is called in the North, averages
12 feet, including chimney breasts,
to 170 superficial feet, the sculle
by 10 feet, larder 7 by 6 ft., and lob
passage sufficient only to allow fo
doors leading therefrom, about 6 by
The scullery may be considered too
but it is the wife's workshop, and alt
a smaller one is sometimes advoca
compel the family to occupy the
room for meals and not make it a pa
it may happen that the family is a
one and the wife prefers to keep the
room tidy for her husband after h
finished his day's work, and on Su
It seems a little unreasonable that t
should not be allowed to make wh
they like of their rooms if with a v
their own comfort and convenience
however, the scullery has to be use
wash-house as well and to contain a
and a bath, 12 by 10 feet is no
large. And three bedrooms are a
sity, occupying together the same a
the ground floor.

To obtain this amount of space—
outside walls were 11-in. hollow
a pair of cottages would require to
sure 36 by 24 feet approximately
taking the mean height—if all room
eight feet from floor to ceiling
2 feet below ground floor to half the
of the roof—at 23 feet we should ge
cube feet each cottage. If, howeve
copper, the bath, coals, E.C., and
other etceteras are to appropriat
of the scullery and larder area, a
good in other respects is spoiled.

The Outbuilding.

An independent outbuilding,
attached to but not opening into
some distance therefrom, is the mo
able asset to a cottage. It shoul
the wash-house and contain the w
boiler and bath, and provide room
wheelbarrow, perambulator, garde
washing tubs, winter potatoes,
can, pig meal if a pig is kept, an
things which otherwise have to be
the scullery, in the larder, and un
stairs. If only on hygienic ground
of these things are better away from
food is prepared and people live
part of their time, and should be
separate from the cottage itself. T
building should comprise also a fue
to hold a ton of coals, and an E
privy, at the extreme end, altogethe
ing a building about 16 by 9 feet
out and costing, at, say, 3d. a cu
about £20, or with fittings in
boiler and bath £24, equal to a r
about 6d. per week.

Unlike a town where coals can
chased by the hundredweight, the
has usually to buy his by the ton
often the practice for his employer
them free when his wagons return
from taking corn to market or to t
way station.

We know, of course, that cott
towns do not contain the accomm
described, but the conditions ar
gether different. Food, fuel, an
necessaries can be purchased
hand; in villages remote from tow
otherwise, and, owing to the high

---

* Extracts from a paper read before the Society of Estate Clerks of Works.

d in most towns, cottage accommoda-
and the outlay on the buildings have
e restricted to compensate for its cost,
even then with a rental of 4s. to 5s. a
k return but a small interest on the
ay. The agricultural labourer with
present wages is unable to pay more
.half that amount.

Planning.

is more economical to build cottages
airs than singly, and still more so to
d them in blocks, but there are objec-
s to the latter in country places, and
general way pairs are more often
ted.

square plan, all sides being equal, is
best for a single cottage; it reduces
amount of external walling and in-
al wall plastering to a minimum, but
t so well adapted for a pair of cottages
an oblong or parallelogram. The
r admits of better internal arrange-
ts, and lessens the span of the roof.
re the frontage is equivalent to four
the depth to three or thereabouts, that
the frontage measures say 36 feet and
depth 24 feet approximately, we get
est results.

an instance of how deviating from a
re plan affects the amount of external
ng, 36 by 24 feet takes about 12½ per
more than a square plan with a
ar area, and 52 by 16½ 20 per cent.
, although the same area. Many of
cottages erected by owners of large
es who possess the means and inclina-
o make cost a secondary consideration
not be taken into account when deal-
with the cheap cottage problem. I
an agricultural village where the
ges are built in pairs, each cottage
g hot and cold water supplies, bath-
and a quarter of an acre of garden;
st per pair of cottages and fences was
and the rent is 1s. a week.

the other hand, there are many
rs, not millionaires, who possess only
interest in their estates, but who
nise the necessity of properly housing
abourer. The cheap cottage is the
resource of these.

Supplying Quantities.

s not a big job to take out the quan-
for a cottage or a pair of cottages,
ith a knowledge of the price of mate-
the cost within 5 per cent. can be
d at. It is desirable, if only for the
of the brick merchant and timber
ant, that the quantities should be
ied to the builder. If built by con-
it is then his own fault entirely if he
them below prime cost. I do not
with the remark I once heard that it
t advisable to supply inexperienced
builders with the quantities, as in
ng their own estimates they miss
and in this way send in low tenders.
is accountable, I suppose, in a mea-
for many builders' bankruptcies in
ry districts.

Internal Arrangement.

al customs vary in different parts of
country, and a suitable internal
gement of cottages in some parts is
nsidered so suitable in others. At
etchworth Show there were plans of
thirty to forty cottages erected on
estates in different parts of the
y, many of which showed clever
gements for economy in construc-
nd good planning, but they obtained
ight recognition.

ne further extracts from Mr. Potter's
will show, in a future issue, the
of construction.]

THE WAR OFFICE TIMBER PURCHASES.

At the annual meeting of the Timber Trade Federation last Wednesday, a protest was entered against the Ministerial statement made recently in the House of Commons concerning the conditions in which the Office of Works entered into an arrangement with Mr. Meyer for the purchase by him on commission of the large quantities of timber required by the War Office. The meeting, which was held in the hall of the London Chamber of Commerce, was attended by a large number of members of the Federation, and Mr. John Gallatly, the president, was in the chair.

Mr. A. Farquharson and Mr. C. J. Morgan moved and seconded a resolution in the following terms: "That the members of this Federation, representing all branches of the timber trade throughout the country, protest against, and strongly resent, the unfair aspersions cast upon a large section of the trade by a Minister of the Crown in the House of Commons in connection with the question of the supply of timber for Government purposes, and record their regret that, although the Director of Army Contracts stated on December 30 last 'that the principle of consulting leading representatives of the various trades on points where expert assistance is useful' had been adopted for some time by his department, it has not been applied to the case of the timber trade, through the Federation or otherwise."

It was stated in speeches made by the mover and seconder of the resolution, and by Mr. W. W. Howard, Mr. C. J. Wade, and Mr. F. Vigers, who supported it, that offers to give expert advice to the Government, free of charge, in making the required purchases of timber had been made, but had not been accepted, and that members of the trade would be pleased to give such assistance to Ministers at any time.

The motion, having been passed unanimously, was ordered to be sent to the Prime Minister.

Mr. Booth, M.P., said that he had not been approached by any member of the trade, but he had attended the meeting in order that he might be able to acquaint those members of the House of Commons who had taken an active and critical interest in the subject with the views of the Federation on the statement made in Parliament by the representative of the Office of Works. Those members of Parliament wished to know the truth of the matter, and the trade could rely upon their support in an effort to ascertain the facts.

Mr. Meyer's Timber Contracts.

In the House of Commons last Wednesday, Sir H. Dalziel asked whether Lord Emmott, as First Commissioner of Works, was consulted as to the terms of the contract with Mr. Meyer in regard to the buying of timber before the contract was made, and whether he gave his authority for the same to be carried into effect.

Mr. Beck said the matter was mentioned to the First Commissioner, and he told his Department to render all the assistance they could to the War Office, and gave general approval to make such arrangements as they thought best. He was not informed of all the details at the time, but he had since made inquiry about the matter, and he had not the least doubt that a very great saving of public money was effected by the course adopted. In view of the urgency of the case, the method adopted was to instruct local officers of the Office of Works to make personal inquiry as to stocks and prices in their districts, and to make similar inquiries from the head office where this could be most readily done. The instructions were issued on October 15.

Mr. Beck, in reply to other questions, said that a new arrangement with Mr. Montagu Meyer as timber buyer for the Government was under consideration. But it was not proposed to make any other contract than that contained in the published letter from the War Office to Mr. Meyer, which contract could be terminated at any time.

In reply to a question raised by Mr. Joynson-Hicks Mr. Beck, on behalf of the Office of Works, said it was not possible to trace all the timber supplied through Mr. Meyer to its destination in soldiers' huts, but a considerable percentage had been traced, and the War Office had stated that the supply had proved most satisfactory.

In the House of Commons on Thursday, March 4, Mr. W. Young called attention once more to "the Meyer timber-buying arrangements." The commission paid to Mr. Meyer, he said, was admitted on all hands to be exorbitant. The main defence of the two hon. gentlemen who had represented the Government had been that, nevertheless, the arrangement had been to the public advantage. This defence he felt certain had not convinced a single business man. When a blunder was made in business the best thing was to admit it and remedy it as soon as possible. If this ridiculous contract was not cancelled there would be something like a wave of indignation throughout the country. If further purchases should be necessary the Government would do well to appoint a timber expert at a reasonable salary, and Mr. Meyer could then have a chance with other merchants of securing the Government contracts.

Mr. Booth wished to give the Financial Secretary to the War Office an opportunity to set himself right with the House and the timber trade. The hon. member in one of his speeches had referred to attempts by a large section of the trade "to squeeze the Government." The Timber Trade Federation resented this aspersion, and he had no doubt that his hon. friend would recognise the seriousness of bringing such a charge without adducing proof.

Mr. Beck said that as the Office of Works had no responsible representative in the House he had been asked by Lord Emmott, the First Commissioner of Works, to read to the House on his behalf a statement on the matter. The statement said that when it became necessary for the War Office to provide huts for the new Army enquiries were made by the Office of Works as to the stocks and prices of timber in the country. The conclusion was thereupon come to that it was doubtful whether a sufficient quantity of timber of the sizes and qualities required could be obtained in this country at all, and that if the timber was to be obtained in the open market as quickly as it was required prices would be raised to an extent it was impossible to forecast. Mr. Meyer, whose firm had been asked to tender, suggested that the proper method was for the Government to purchase its timber abroad direct, and a plan was evolved of including in one operation purchase, transport by sea and land, and the preparation of the timber for the huts at the actual camps and elsewhere, with Mr. Meyer as buying agent. Power was reserved by the Government to terminate the arrangement at one day's notice. It was also provided that the operations should be checked by an official staff, the chief of which was a qualified accountant, who would have access to the records. Lord Emmott was not at first informed of all the details of the arrangement, but he had since made enquiries, and had not the least doubt that a great saving of public money had been effected. So far from apologising for the transaction, the Office of Works felt that the nation had been well served by Mr. Meyer. As to the commission of 2½ per cent. paid to Mr. Meyer, it must be remembered that the Office of Works had no idea at the time what a large volume of business in timber would have to be transacted. Moreover, it included a great deal more than was covered in the ordinary buying on commission in the home market. Mr. Meyer had to arrange with the trade shipping agents, who did all the foreign ordering, for purchasing abroad, for sea freight, insurance, landing charges, and dock dues, for conveying the timber by rail and for converting it, when necessary, to the sizes required. Lord Emmott readily admitted that brokerage which was fully justified in a business emergency, or for the purchase of a comparatively small amount, might be deemed to be excessive when the total purchases reached large figures. He felt that it would be a great detriment to the public interest, as well as a great injustice to Mr. Meyer, after serving our interests so well, if he were to be contemptuously cashiered. The transaction had grown with great and unexpected rapidity, and Lord Emmott felt that after the amount of £600,000 was reached some new arrangement ought to be made. Mr. Meyer fully accepted the position, and put himself unreservedly in the hands of the Department, and the matter was now under consideration. Lord Emmott added that he could not for a moment agree that the Office of Works would have been justified in taking the easy course of simply accepting the lowest tender when they believed they could buy much more cheaply by other methods. Had they followed the course of accepting the lowest tender no hon. member would have objected, but the nation would have been the poorer. Because the Office of Works had had the courage to adopt better methods they were denounced by men who had not the material facts before them. He traversed the contention that the contract was not fair to the nation, and quoted from a number of spontaneous letters which he had received from responsible and well-established persons in the trade approving of the Government's action. One trade competitor wrote that he was very disappointed he did not get Mr. Meyer's job, and his computation was that the country had been saved at least £8,000 so far by the transaction. The wood delivered through Mr. Meyer had been satisfactory, less than 1 per cent. had been rejected, and it had been promptly delivered under extraordinarily difficult circumstances.

Mr. Bonar Law did not agree that the sole question was whether the country had good value for its money; there was another question—namely, whether the transaction had been entered into with the care and circumspection which the House had a right to expect from the Government. There was no timber dealer, he should say, in London who would not have jumped at the arrangement and made it on a much lower scale. However, from what he had heard, he was not going to join in any condemnation of Mr. Meyer. He had no reason to suppose that he had done his work otherwise than well.

Sir R. Balfour, speaking with twenty or thirty years' experience of timber buying, said that in every case with which his firm had been concerned they had paid commission at the rate of 2½ per cent. The case of the Mersey Docks and Harbour Board had been quoted as a case where only 1½ per cent. was paid, but it should be remembered that in that case there was a permanent engagement. In the case of the war it was an adventitious business, he hoped for a short time. Under all the circumstances, the commission paid was, in his opinion, a reasonable one.

Mr. H. Baker, referring to the speech made by Mr. Booth earlier in the debate, reminded the hon. member that when he spoke about a ring in connection with the timber trade he confined himself to saying that if the Departments had put themselves in the hands of a Committee they would have been accused of having fallen victims to a ring. Perhaps the words which he used about an attempt to squeeze the Government were more forcible than the occasion warranted. He was certainly willing to withdraw those words as a collective accusation against the trade as a whole. But he thought the suggestion that excessive prices were asked from the Government by a great number of persons was fully justified. He had not the slightest intention of suggesting anything in the nature of an unpatriotic conspiracy on the part of the timber trade. The view that an inquiry after the war would reveal greater extravagances than in any other war was, he thought, pessimistic. He would not contend that no mistakes had been made. In many cases it had been so important that the troops should have particular articles at the moment that the Government had been compelled to submit to prices they would not otherwise have accepted. From the beginning the War Office had had help from people with a full knowledge of particular branches of trade. He hoped that soon this advice might be more systematised.

ENQUIRIES ANSWERED.

Partnership Question.

"X. Y. Z." writes: "A and B are architects and surveyors in partnership, receiving equal shares of profits. A is a senior officer in the Territorials, and has been away on duty since the mobilisation in August last, since which time he has been in receipt of his pay, and B has carried on the practice, doing all the work. Do you consider that A is still entitled to receive a half-share of all profits since August last? If not, what would be a fair proportion for him to receive?"

—This is a question of so much difficulty and delicacy that we should prefer to be excused any attempt at a categorical reply. We should suppose that, as a matter of mere legality, A is entitled to his half-share until the partnership is re-adjusted or dissolved. Morally, however, A could hardly feel justified in continuing to draw half the profits while doing none of the work. If he were to pool his military pay (minus equipment expenses, and so forth) there might be a nearer approach to equity and *camaraderie*. We sympathise with both parties—with B because he is doing more than his fair share of the work, and with A because he is serving his country. A pooling of the respective earnings is suggested as a *modus vivendi*, and this course would probably still leave B the satisfaction that he also was making sacrifices.

Efflorescence in Brickwork.

"B. I. and Co." write: "We have built in red bricks, with rough surface, a fireplace, the mortar being Portland cement, about six months ago. A white efflorescence from the cement came through the
bricks, and our customer had this w
with water and brush, and the c
quence is that the bricks are discolc
the stuff going into the small "wrin
of the bricks. Can you tell us o
chemical which will get rid of thi
coloration? We cannot rub it out, a
wrinkles are nearly ¼ in. deep.
chemical will remove it, would it b
to stain the bricks?"

—A weak solution of hydrochlori
might be tried; but repeated washing
soap-and-water, and afterwards
water, applied with a stiff brush, affo
safest means of dealing with the nui
which is apt to be very obstinatel
sistent. We should not advise colo
but if this course is adopted the bes
would be to use crushed red brick
same kind as that used in the build

"Ramp and Twist."

"Anxious" (Lanarkshire) w
"Could you advise me as to how to
the "ramp and twist," commonly u
masonry work and also in staircase
rails?"

—We are unable to give up spa
matters which are dealt with in the
books.

OBITUARY.

Mr. William Willett.

Mr. William Willett, head of the f
builders bearing his name in
Square, and the promoter of the Da
Saving Bill, died on March 4 at h
sidence in Chislehurst, at the age o
eight. His name has been familiar
public for many years as that of a b
of beautiful houses, though it was th
his father, who died in 1913, that
became thus honourably known.
herited his father's ability both as a
and designer, and, if possible, almos
than his father's energy as a busines
Houses erected by the firm are fo
large numbers, notably in the Kens
and South Hampstead districts.
in the Eton Avenue district of
Hampstead or in parts of Chelsea a
cal of the Willett design. They ar
on an extended ground plan, th
wherever space permits, being to a
lot of stair-climbing, and to provid
well-lighted rooms, and also to do v
basement rooms. Each house gi
impression of having been the objec
dividual consideration, not only as r
its own planning, but also in the
taking the utmost advantage of a
turesque or pleasing qualities in
vironment. In 1903 Mr. Willett
purchased Clifford's Inn for £100,00
sequently a portion of the Inn was
the Crown for the extension of the
Office, and the hall was dispose
1911 to the Company of Knights, L
scheme for daylight saving was t
should add an hour to our day
spring and summer months by putt
ward the hands of the clock one h
the third Sunday of each April, and
them back again an hour on the thi
day of each September. This p
was embodied in a Bill which
Pearce, M.P., introduced into the
of Commons in 1908. The Bill pa
second reading and was referre
Select Committee, which reported
ably on it, stating that it would n
be beneficial to the general health
community at large, but would cur
penditure in artificial light. Th
however, did not reach the final st
the House of Commons.

CIAL LEGAL REPORTS.

Builders' Third-party Liability.

Bernarter v. Townsend.

19. King's Bench Division Before Mr. Low and a Common Jury.

rt Bernarter, a linguist and inter- residing in Goodge Street, claimed es from Messrs. Townsend, builders ntractors, Dean Street, Shaftesbury , for injuries received by the alleged nce of themselves or their servants. defendants admitted their liability, id £55 into Court in full satisfaction claim.—The defendants, it seemed, oing some repairs, and had placed a building a 55-rung ladder. As intiff was passing it fell, not having istened to the building, and struck the head, knocking him down. xamination it was found that he had ured thigh, which he asserted was sult of the accident, but the de s alleged that it was an old cted fracture from which he had l for some time. There was a great ice of opinion among the medical es called, and finally the jury found ur of the plaintiff for £150 and special damage. A stay of execu- s refused.

Vall Dispute: London Building Act.

Spiers and Sons v. Troup.

22. King's Bench Division. Before Mr. Scrutton.

lordship delivered his reserved nt in this action, which was a wall dispute between Spiers and td., builders and contractors, of oad, St. John's Wood, and Mr. Troup, of Dogdean Farm, near ry, Wilts.

rdship said the claim was for the portion, said to be half, of the s of pulling down and re-building y wall between 36 and 37, Hatton London. It was agreed that the estion he had to deal with was . The plaintiff had a building ent with the freeholder of 36 and ton Garden, to erect certain new s on the site, and when the work npleted the plaintiffs were to re- 99 years' lease from the freeholder arch, 1912. Nothing in the agree- is to amount to an actual demise emises. Number 36 was leased by holder to the defendant Troup, l sub-leased it with Mr. Richard- Plaintiffs' surveyor, on March 3, ly served party wall notices of l rebuilding of the party structure ndant and Richardson. At this eir building agreement had not ned and they were not in occupa- umber 37. Defendant gave notice ntment of surveyor on April 3, and surveyors appointed Mr. Howard d Clarke their umpire. After the e of the building agreement, commenced their work, which the party wall. The old build- 200 years old, and the material wall had lost most of its adhesive , and was little more than dusty The district surveyor cast an rable eye upon it, and the defend- ed to throw the responsibility on holders. The district surveyor ed the wall, and a notice was duly pon all concerned. Nothing was d there was a magistrate's order made under the London Building , and the Amendment Act of 1898 olved the demolition of the whole plaintiffs pulled it down (as the defendant would do nothing) and rebuilt a party wall, but as they were erecting improved premises at 37, they rebuilt a higher and thicker party wall. This was without any warrant from the surveyors, and an account was sent to Richardson claiming half cost, £226. Richardson returned it with a denial of liability. It was sent to the defendant with the same result, hence the action. Mr. Hudson, K.C., for the plaintiff, claimed the expenses under section 96 of the London Building Act, 1894, urging the wall was dangerous and the defendant had not within a month expressed his dissatisfaction in writing under section 97; and putting forward other contentions. His lordship said when plaintiffs gave their party wall notice to the occupier of 36, they were not in occupation of 37, and had no legal or equitable interest in the premises. There was nothing in the notice about a higher and thicker wall. He thought the notice given bad. Section 96 had not been complied with, as the adjoining owner, the defendant, had not received a complete account within a month of completion. The magistrate's order was only to take down the wall. He held under all the circumstances that the plaintiffs' claim for a proportion of the expenses of rebuilding failed. The claim in respect of pulling down was in a different position, and under section 173 the plaintiffs could recover for pulling down but not for rebuilding the wall actually built, and he made a declaration to that effect. As each had partly succeeded and partly failed, each party would pay its own costs.

NEWS ITEMS.

Dundee New Post Office.

We are informed that His Majesty's Office of Works are users of "Pudlo," and among the latest works for its inclusion is the Dundee new post office, where the cement mortar and all renderings are to be water-proofed with "Pudlo."

Government Take Over Steelworks.

Several Scottish steelworks have been taken over by the British Government. The orders by the British and French Governments are by far the largest on record. Scottish ironmasters declare that the high price of coal will force them to damp down the iron furnaces.

Fire at the "Moulin Rouge."

The famous music hall known as the "Moulin Rouge," Paris, was seriously damaged by a fire which broke out recently. The auditorium was destroyed, but the efforts of the firemen prevented the flames from spreading to the neighbouring buildings. The stage and scenery were saved by the fireproof curtain.

French Honours for English Architects.

La Société des Architectes Diplomés par le Gouvernement, in virtue of a decision of their general Assembly Law, conferred upon the President of the Architectural Association the right to be a corresponding member during his term of office. Mr. Gerald C. Horsley, F.R.I.B.A., Past-President, Architectural Association, has by the same decision been elected a corresponding member "á titre définitif." Comment upon this gratifying incident will be found under "Editorial," p. 110.

Sale of the Fragonard Panels.

It is announced that the Fragonard panels from the Morgan collection, which had been disposed of by Mr. J. Pierpont Morgan to Messrs. Duveen for an unnamed sum, have been purchased by Mr. H. C. Frick, who has paid Messrs. Duveen the sum of £285,000. Jean Honoré Fragonard, who painted the panels which Mr. Frick has acquired, was born in 1732 at Grasse. He was patronised by the licentious Court of Louis XV., and his pictures reflect the voluptuous tastes of his patrons. The panels known as "Roman d'Amour de la Jeunesse" were painted for Mme. du Barry's pavilion, but were not completed when she was hurried to the guillotine, the artist, fearing the same fate, fleeing to Grasse. They were bought for £20 by a distant relative, who was offered £60,000 for them. In 1898 they were exhibited in London, and later acquired by the late Mr. J. P. Morgan.

A Garden Suburb for Dockers.

A garden suburb for dockers, the first of its kind in the United Kingdom, is being planned at Prince Regent's Lane, Plaistow, by the Port of London Authority. There will be over 200 houses, giving accommodation for some 1,000 persons, and the work is to be completed in a little more than a year. Each house will contain a bath. The roads are 40 ft. in width, and there will be twenty-two houses to the acre, each with a frontage of 15 ft. and a garden plot at the front and back.

Building in Liverpool and District.

Our special correspondent for the Liverpool district reports that on an average prices may be said to have risen about 20 per cent. all round. This, coupled with the shortage of labour and the holding of capital, has resulted in the indefinite postponement of many commissions. Whilst the completion of a number of large buildings, such as the Wallasey Town Hall, the new Cunard offices, the West African Bank, Crane's Building, etc., is proceeding, few new works of any magnitude are being undertaken. About seventy designs have been submitted in the Liverpool Housing Competition, and the decision of the assessor is expected shortly.

Belgian Architecture.

M. Victor Horta, Director of the Royal Academy of Fine Arts at Brussels, delivered a lecture in French last Thursday at University College on "The Architecture of Belgium since 1840." The lecture was one of the series arranged by the Carpenters' Company, the Master of which, Mr. Minden Smith, occupied the chair. After describing the characteristics of the principal cities of Belgium M. Horta pointed out how largely dependent their architecture had been on the materials ready to the hands of the architects. In its marble and slate and stones Belgium had riches which more important countries might well envy Proceeding to describe the architectural tendencies of the last seventy-five years, he showed how there had been a perfect epidemic of classical designs modified by renaissance, under the influence of Viollet-le-Duc. In this good work had been done by a number of Belgian architects, although he lamented the fact that there had been a tendency to "Haussmannisation" in Brussels and elsewhere. Now that Belgium had been destroyed it would be the business of Belgians to rebuild it, and he hoped that in doing so they would accomplish something great by constructing not monstrous, overgrown buildings in the style of New York, but buildings representative of intellect. If they had not the money with which to do it they might hypothecate Cologne Cathedral, M. Horta drily remarked—a Gallican sally that moved his delighted audience to Homeric laughter.

SOCIETIES AND INSTITUTIONS.

German Vandalism and Gothic Art.

A lecture on this subject was delivered before the last meeting of the Liverpool Architectural Society by Mr. J. G. Legge, Director of Education, views being shown of buildings before and after their destruction by the Germans. Reims Cathedral was especially well illustrated.

Cheap Cottages.

The Glasgow Royal Technical College Architectural Craftsmen's Society held a meeting on Friday, February 26, when Mr. R. W. Horn, A.R.I.B.A., of the City Engineers' Department, read a paper on "Cheap Cottages." The lecturer showed how a belt of land round the present area of Glasgow could be laid out so as to accommodate a very large population housed on the cottage principle. He drew comparison between the cost of housing on the two systems exemplified by the tenement and the cottage, and analysed the factors contributing to this difference.

Mr. Horn then discussed the advantages and disadvantages of the English cottage and pointed out reasons against its universal adoption in Scotland. He also suggested certain relaxations of the building regulations which might tend to foster the erection of cheap cottages north of the Tweed.

Chelsea Antiquities.

Mr. Walter H. Godfrey, acting secretary of the London Survey Committee which, in co-operation with the London County Council, is producing detailed surveys of all the parishes in London, lectured on "Chelsea Antiquities" at Carpenters' Hall, London Wall, last week. The chief man who founded Chelsea, said the lecturer, was Sir Thomas More, who discovered an old farmhouse, bought it for his semi-retirement, and built a magnificent house. The most important building was the old church and the private chapel of Sir Thomas More. In the chapel were the original carvings of Holbein, done while he was staying with Sir Thomas More. The only one of the old palaces left was Lindsey House, on the Thames. It was now divided into several tenements, but half of it had been bought by Sir Hugh Lane. The old church and the Royal Hospital, which was one of the finest of Sir Christopher Wren's designs, were perhaps the most interesting buildings. A great change occurred in Chelsea when Sir Hans Sloane bought the old manor house, which Henry VIII. built. The house had a great collection of curiosities, which was the foundation of the British Museum. Lantern pictures of Lindsey House, the Botanic Garden, and several Georgian houses were shown.

Annual Meeting of the Aberdeen Society of Architects.

The seventeenth annual business meeting of the Aberdeen Society of Architects was held in the rooms of the Northern Arts Club last week, the president, Mr. A. H. L. Mackinnon, in the chair.

The hon. treasurer, Mr. G. B. Mitchell, submitted a statement of accounts for the year, showing a satisfactory balance at the society's credit. The report was adopted.

The resignation of Mr. James Souttar was announced, and the admission of Mr. W. E. Gauld, F.R.I.B.A., agreed to.

The successful competitors in the society's drawing and design competitions were:—Senior Section.—1 W. D. Fowler (pupil with Brown and Watt); 2 D. C. Rae (pupil with A. H. L. Mackinnon) Junior Section.—1 A. S. Watt (pupil with Wilson and Walker); 2 G. Johnstone (pupil with C. George).

The meeting then proceeded to the election of office-bearers for the ensuing year, when the following were elected.—President, Mr. A. H. L. Mackinnon (A.); vice-president, Mr. George Watt (F.); hon. secretary, Mr. R. G. Wilson, jun. (A.); hon treasurer, Mr. George B. Mitchell; and along with the above, the following were elected ordinary members of council: Messrs. W. J. Delvin (A.), C. George, H. Maclennan, J. R. M'Millan (F.), and J. Rust.

(A.) and (F.) = R.I.B.A. members.

A Wren Résumé.

At a general meeting of the Leeds and West Yorkshire Architectural Society, held at the Leeds Institute, Cookridge Street, on February 18, a paper on "Wren" was read by Mr. J. H. Farrar, A.R.C.A. (Lond.), the President, Mr. G. Frederick Bowman, in the chair. The lecturer dwelt rather upon Wren's personality and his place in history than on the range and quality of his works. Members of the Wren family had served in spiritual and temporal offices to the Crown as early as 1500. Matthew Wren, Lord Bishop of Ely, and his brother Christopher, father of the immortal Sir Christopher, both suffered persecution at the hands of the Long Parliament, Bishop Matthew being confined in the Tower of London for eighteen years until the Restoration. It was for this same Matthew Wren, as President of Pembroke Hall, Cambridge, that Christopher carried out his first architectural work, the new chapel there. He was then more than thirty years of age. Up to this time he had applied himself chiefly to scientific pursuits, having been Professor of Astronomy at Gresham College, London, and at the University of Oxford. He was skilled in mathematics and a prolific inventor. It was during the year of the Plague that Wren made his only visit to the Continent, when he journeyed to Paris to a Congress of Arts. Here he met Bernini, who was at work upon the Louvre, and Mansart and Perrot. After a stay of six months he returned to England, and in the following year the Great Fire swept away the mediæval town of London and presented to Wren the opportunity for the creation of a new and beautiful city. Unfortunately, the parsimony and stupidity of those under whom he had to work prevented most of his dreams from complete realisation; but, despite his limitations, by skill and forethought he converted London from a stuffy, plague-ridden city of the Middle Ages to an airy modern town of brick and stone.

The lecturer went on to analyse the details of Wren's great task, more particularly with regard to the controversy as to what was to be done with the gutted St. Paul's; how he triumphed eventually over his critics and completed his new church within forty-five years from the date of the fire. Wren's last five years were spent in quiet retirement at his house near Hampton Court, where he died after a short illness at the age of ninety-one.

A vote of thanks was accorded to the lecturer, on the motion of Mr. W. G. Smithson, A.R.I.B.A., seconded by Mr. J. G. Coombs, A.R.C.A.

At the conclusion of the lecture Mr. Bowman presented Mr. Farrar with a silver tea service from the members of the Sketching Club on the occasion of his recent marriage.

Garden Cities Association.

The sixteenth annual meeting o
Garden Cities Association was held
offices, 3, Gray's Inn Place, on F
afternoon, February 26. A large n
of the officials and members of
Council were unable to be present,
engaged on military or hospital serv

The following letter was recived
the President, the Marquis of Salis
"I am afraid that everything must
way to military considerations now
and the work which I have underta
that direction makes such demands
me as to render it impossible for
enter into any engagement to attend
ings in London in the near futu
hope the Committee and you yourse
understand and sympathise with thi
clusion. I need not tell you how g
I hope for the success of your e
With many thanks about what yo
me about your hopes in Belgium."

Mr. Cecil Harmsworth, M.P.,
mentary Secretary to the Home Offi
Chairman of the Council, who at th
moment was delayed by official
wrote as follows to the secretary
Ewart G. Culpin: "I have read the
with very genuine pleasure. It is a
of which you and the other memb
the staff have every reason to be
and I take this opportunity to off
my warm congratulations. When
is had to the smallness of the sta
amount of work to be transacted, a
slenderness of the Association's res
it is little less than wonderful that so
influence has been exercised and so
admirable things have been
plished." Subsequently Mr. Harm
arrived and addressed the meeting
great progress made by their princi
exemplified by the report. He sa
Association had not only effected a
tion in methods of development
country, but, through their lecture
their literature, had carried the sam
sage to practically every part of the
while they had now initiated one
greatest of their enterprises in ende
ing to bring good out of evil in dis
Belgium.

The financial report showed
despite the war, the income for th
year was the highest on record.
ning with a debit balance on the
account, the year closed with £
hand. In addition £500 had been
for the Australasian lecture tour,
provided for two lecturers tra
throughout the whole of Australasi
operation with the Governments
different Dominions.

In the annual report it was o
that war conditions had not ma
checked enterprise, but the action
Public Works Loan Commissioners
sisted in, would prevent the buil
future of such object lessons in d
ment as the co-partnership est
Hampstead Garden Suburb.

The inaction in regard to the
provision in the arrangements for
tension of the new Port of Lond
very strongly criticised.

The Marquis of Salisbury was re-
President, and other officials we
re-elected. Subsequently Mr.
Harmsworth was re-elected chair
the Council, Mr. Warwick H. Dra
elected deputy-chairman of the C
and Mr. W. R. Davidge,
A.R.I.B.A., chairman of the Execu
the ensuing year. Major F. E. Fr
and Mr. Glynne Williams were
treasurers, Mr. Herbert Warren h
solicitor, and Messrs. W. B. Peat
honorary auditors.

OJECTED NEW WORKS.

Council Offices, Penicuik.

ıe Penicuik Town Council have decided ect new Parish Council Offices.

School, Glasgow.

ıe Glasgow School Board are to erect w school at the corner of Boden and ıard Streets, Glasgow.

Cottages, Balbriggan.

ıe loan of £7,000 required by the Bal-gan Council for the erection of thirty men's cottages has been sanctioned ıe Local Government Board.

Infirmary, Derby.

rby Board of Guardians have decided rchase twelve acres of land adjoining orkhouse as a site for the erection of posed new infirmary.

Public Baths, Stratford.

e West Ham Town Council have de- to purchase the freehold of the Strat-Hall Estate, Romford Road, as a site e erection of new public baths.

Town Hall, Rutherglen.

J. Gaff Gillespie, architect, Glas- has been asked to prepare amended for the reconstruction of Rutherglen Hall.

School, Pollokshaws.

ıs of a new school to take the place Pollok Academy, Pollokshaws, are consideration. The site is in Cow-Road, and the estimated cost of the ıg is £19,000.

Institute, Coatbridge.

ıs have been passed by the Coat- Dean of Guild Court for the erec-t a cost of £3,500 of a new United Men's Christian Institute in Bank Coatbridge.

hs and Conveniences, Reigate.

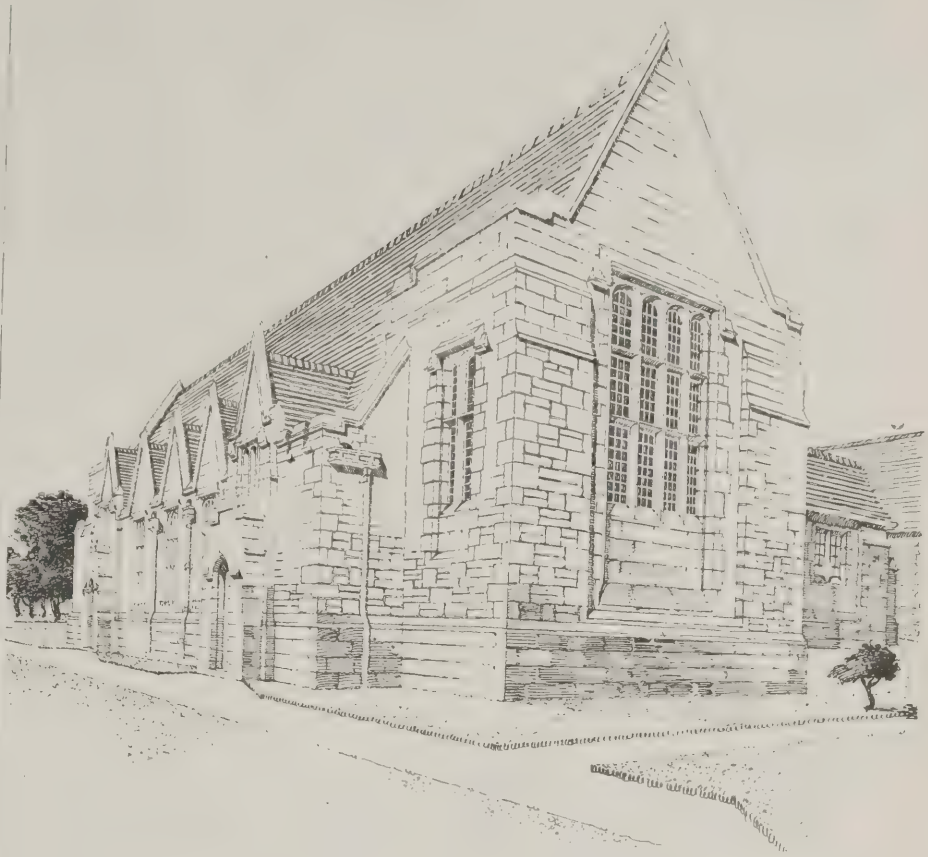
ate Town Council have approved prepared by their Surveyor for the n of public conveniences on the House Estate. The Council are ıting for a site for the erection of ter baths.

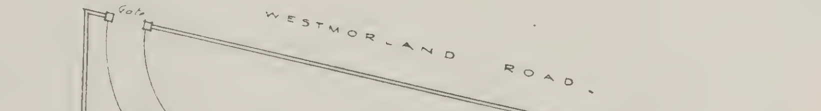
Housing Scheme, Evesham.

Evesham Housing Committee of the Council have decided that circum- are at present as propitious for g as they are likely to be for some come, and have therefore instructed chitect to get out plans and particu- connection with the local housing .

ENSIONS TO RUTHERFORD EGE FOR GIRLS, NEWCASTLE-ON-TYNE.

e limited competition recently held gn sent in by Messrs. Marshall and , 17, Eldon Square, Newcastle, ırded first position, and they have instructions to prepare plans for ion to the Education Department. eme includes the provision of an y hall for 1,000 students, cloak-avatories, and connecting corridor cisting college. The hall has been entrally on the site, and well away e college teaching rooms. The s will be erected in local sand-he interior being plastered with wood dado. An early start will be th the erection.





NEW ASSEMBLY HALL, RUTHERFORD COLLEGE FOR GIRLS, NEWCASTLE-ON-TYNE: SELECTED DESIGN.

MARSHALL AND TWEEDY, ARCHITECTS.

TRADE AND CRAFT.

A New Mechanical Filter.

For many years Messrs. Mather and Platt, Ltd., have been engaged in the construction and installation of large-sized pressure filters for public or industrial purposes, and the firm is responsible for some of the largest plants for the filtration and purification of water at home and abroad. With the view of meeting the requirements of comparatively small users, Messrs. Mather and Platt have now placed on the market a new type of filter specially designed to fulfil the conditions met with in the water supply of public institutions, country mansions, tea and rubber estates, etc., where a cheap and efficient plant for the purification of the water supply is just as much a necessity as in the case of municipalities and large works.

The new filter is constructed on the mechanical principle which has achieved such satisfactory results in the larger sizes. The old-fashioned method of purifying water was by means of sand beds. The passing of water through a bed of sand is, however, not in itself effective for intercepting and destroying bacteria. This is accomplished, in the case of open sand filters, by allowing the water to run for a considerable period, forming a natural gelatinous film on the surface of the bed. With mechanical filters this film is formed by the addition of a solution which coagulates the fine particles in the water. Messrs. Mather and Platt have recently patented an apparatus for passing into the water supply an exact percentage of the required coagulant, the percentage remaining the same irrespective of the quantity of water passing through the apparatus.

A view of the filter is shown in Fig. 1, and its construction will be readily understood by reference to Figs. 2 and 3. The water enters at the top and, after percolating through the filtering media, passes through the nozzles into the cast-iron base, and is delivered through the clean water pipe and valve. A special feature is the design and arrangement of nozzles which are fitted into the base. They are made of phosphor-bronze, with copper perforated domes, and give even distribution over the whole bed both when filtering and during the washing operation. They are screwed in from the underside, access doors being provided so that that any nozzle may be taken out, examined, and replaced without disturbing the filtering medium.

For supplying the coagulating solution, a small copper tank is provided, which normally holds one day's supply; this tank is secured to the pipes as an integral part of the filter. It is fitted with special valves, a sight-glass, and regulating jets, by means of which the required quantity of chemical is admitted to the water. Several of these regulating jets are provided, each to give varying proportions of solution, and when it is desired to change them, one jet can be substituted for another in a few seconds. To control the supply of solution according to the rate of flow, a special feature is an adaptation of the Venturi tube which ensures that the supply of chemical shall always be in direct proportion to the water supply. It has no moving parts, the action being purely hydraulic and absolutely positive.

The new filter is complete and self-contained. It can be readily transported, and erected in any convenient position without special foundations or specially skilled labour. It can be mounted on a motor waggon or other vehicle, and, connected to a pump driven off the main engine, enables pure water to be instantly attainable at any time or place where there is a water supply. It is obvious that this would be of a great advantage to troops and gangs of workmen engaged in out-of-the-way places where the quality of the water is often very doubtful.

Messrs. Mather and Platt have just issued a catalogue relating to this new small filter, and copies can be obtained from them at Park Works, Manchester.

THE FLORENCE NIGHTINGA MEMORIAL IN WATERLOO PL

At an early hour in the morning and out any semblance of public ceremony statue to the memory of Florence Nig gale in Waterloo Place was unveiled. statue is the work of Mr. A. G. Wa and represents the "Lady of the Lamp she might have been seen walking at through the hospital wards at Sc Her dress is in the plain style of the Victorian days, and her smoothly br hair is partly covered with a cap. figure, 9 ft. high, stands upon a pe of grey and red granite, three of the of which show phases of Miss Ni gale's work. In one, with an atte nurse, she is the centre of a group o valescent soldiers. In a second she companied by a medical officer in a of a ward, where wounded soldiers the cots. The third represents her old age talking to a company of "Ni gale" nurses from St. Thomas's Ho The fourth panel bears the inscri "Florence Nightingale, 1820- Foley's statue of Sidney Herbert Herbert of Lea), by whose prescien famous lady was started on her life has been brought from the War quadrangle, and now stands by the the Nightingale statue, while a few in the rear is the Crimean Memor moved into its new place some for towards Regent Street. This fresh ing, it will be remembered, was th gestion of Viscount Knutsford, a adopted by the Nightingale Me Committee after the question of th appropriate site had given it mu cern, and a corner of Westminster opposite St. Thomas's Hospital ha favourably considered. The co referred to was appointed, wi Marquess of Crewe as chairman meeting in the Mansion House thre ago, when it was resolved to erect and to form a fund for pensions abled nurses.

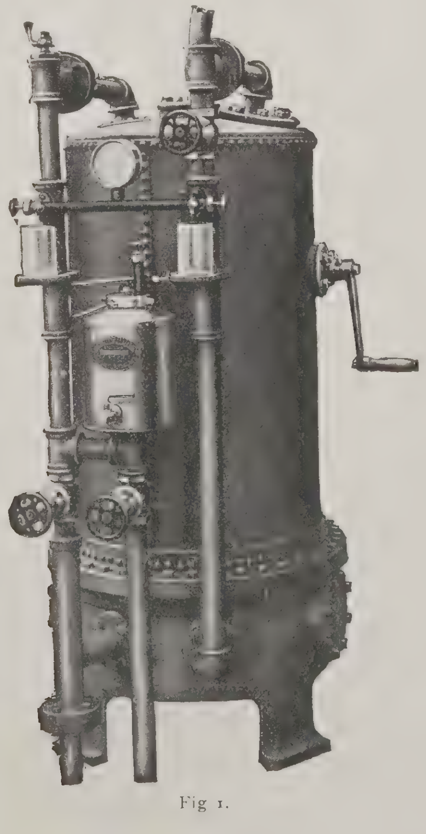


Fig 1.

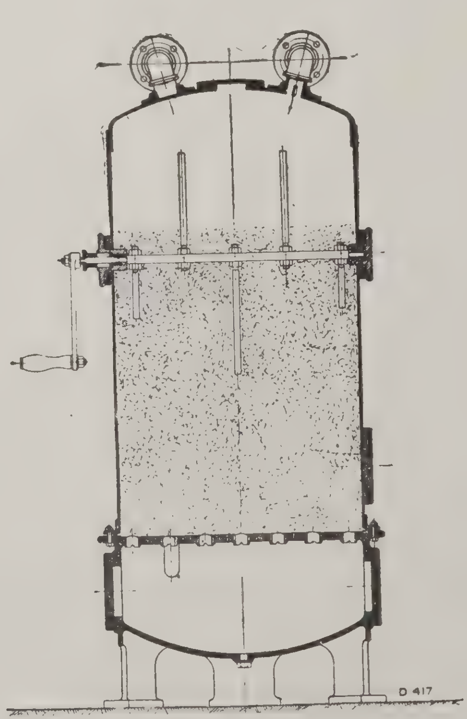


Fig. 2.

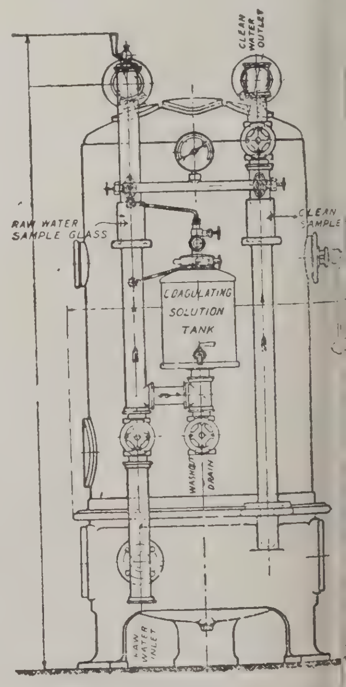


Fig. 3.

A NEW MECHANICAL FILTER.

ELECTRICAL NOTES.

The Beuttell System of Fixtures.

the present the possibilities of the double-capped tubular ve received considerably less attention than they deserve. ɔloyment of this type of lamp has been confined to those ıs in which energy cost has been subordinated to other The comparatively high cost for current generally ed with lamps of this kind has been due mainly to the properly designed reflectors and fixtures for use with The best claim of makers of reflectors for tubular lamps ı that the maximum intensity obtained is only twice the ndle power of the lamp itself. When the features of the considered it will be found that there are many possi- or securing even better results from the point of view my than with ordinary lamp bulbs, by reason of the ation between the practical results obtained and those ıay be theoretically calculated as being most desirable ient.

gues have recently been issued by the Edison and Swan Linolite Co., and Siemens Brothers Dynamo Works, ho have been appointed sole selling agents—of a com- v system of reflectors and fixtures incorporating the use ar lamps under the patents of Mr. A. W. Beuttell, . A high degree of efficiency is apparent throughout m, due to the following important principle. Lighting s are always designed with reference to a point, usually l as the focus of the reflector. From this point the light or should radiate, from its source, until, on striking the , it is projected in certain proportions in directions ıed by the distribution desired, and the contour of the g surface is designed to that end.

ler to realise in practice the calculated distribution of m the reflector it is essential that the source of light concentrated at a point, namely, the focus of the . Now, as the focus of a cup or bowl reflector is a has position but no magnitude, and it is obviously im- in practice to realise this condition. The only example ıing it is the electric arc, which, though of some magni- ets the conditions sufficiently if the reflector be a very e, as in the searchlight, which provides a nearly parallel light with a parabolic reflector. In the more extended of light, such as the bulb lamp or the gas mantle, the ation of light in any given direction is subject to obvious ns.

f the greatest advantages of the use of tubular lamps ectly designed reflectors lies in the very close relation the calculated design and the illumination results obtained. A tubular lamp, as used in the Beuttell has a straight filament, so that the source of light is a in other words, a succession of points upon which the f the reflector is based, and the nearest possible results ined under working conditions to those which have eviously calculated as being most efficient. The vital which is incorporated in the reflectors employed ly eliminates the chief difficulty which has hitherto erienced, namely, that in utilising surfaces of very high value it has been impossible to avoid streaks and s, resulting in unevenness and spottiness of the tion.

euttell principle consists in introducing corrugations of lepth and contour, disposed obliquely to the line source These corrugations, in certain types of fixtures, are ed into the reflector itself, which is of silvered glass. forms the same principle is incorporated by the use of creen with corrugations arranged in the same manner, l in conjunction with a plain silvered glass or polished flector. This arrangement of corrugated reflector is to be entirely novel to the Beuttell system, although of corrugated reflectors themselves is not new; but in s constructed on the Beuttell principles streakiness venness are overcome.

ange of fixtures includes the strip form of reflector, s been very widely adopted for shop window, cornice, ealed lighting generally, but with a marked increase of over previous patterns. For example, the maximum candle power obtained with the Beuttell strip is over s the rated candle power of the lamp, a result hitherto roached by the most highly concentrating reflectors for ı standard bulb lamps. There are several patterns of erial, ranging from simple metal strip at 4s. per foot l forms in wood for places where the strip would be in view. Other fixtures are portable ones for indepen- ıting of show-cases, glass-topped counters, etc., poster fixtures, and units for illuminating shallow shop , in which a concentration equal to nine times the ndle power of the lamp is obtained. Other fixtures are veloped which will extend the scope of the tubular lamp siderably.

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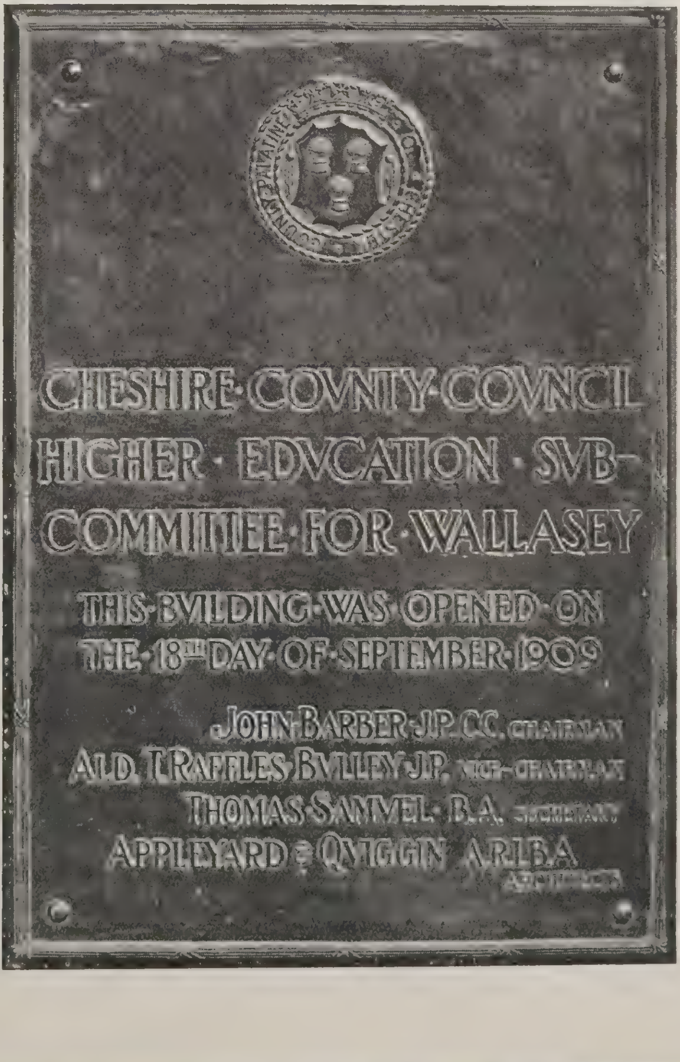
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ARCHITECTS

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THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 17, 1915. Volume XLI. No. 1054.

No. 127.

(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 17, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 105

EDITORIAL.

THOSE optimistic opportunists who are prophesying for us as rich a reward for our hospitality to the Belgian refugees as that which has attended our harbouring of the Huguenots in the seventeenth century see already some confirmation of their hopes in the employment of many Belgian skilled workers in several different industries. One such instance is mentioned by our Special Correspondent in Dublin, where, it appears, a number of Belgians have been engaged for a glass manufactory that is proposed to be built in or near Dublin, on a site on which sand of satisfactory character and quantity has been found. It is to be hoped that the scheme will mature and prosper, and that within a very little while the example may be so far followed as to render this country more thoroughly independent of imports of glass.

* * * *

In glassmaking, as in so many other industries, our manufacturers, unexcelled and perhaps unequalled in the higher grades, have been reluctant to compete with foreign countries in the production of cheap goods, and the result has been too complete a dependence on foreign supplies of common glass. From the promptness with which, as we recorded a few weeks ago, an old-established and very eminent firm of glass manufacturers adapted themselves to the new circumstances by immediately putting into operation a new and economical process of manufacture, and from the further instance of home enterprise that has just been cited, a revival of the glassmaking industry in the United Kingdom may be pretty confidently counted upon as one of the commercial results of a war that will cause many readjustments. Whether the revival shall be permanent depends upon three main conditions—more economic methods and processes of production, a more soundly patriotic attitude on the part of buyers, and a wise abstention by workers from insistence on conditions that make it impossible for home manufacturers to compete against their foreign rivals. Of these conditions the first is distinctly the most hopeful, and may even make the other two to some extent negligible, although this is certainly too much to expect of it; and it must lose its force as soon as the foreign competitor gets hold of the improved processes. Clearly, as Sir William Ramsay has suggested, the whole commercial and industrial position of the country demands the most earnest attention of our best men of affairs.

* * * *

Glass manufacture in this country was so flourishing an industry, in or about the 'forties and 'fifties, that the output reached the annual value of nearly three millions sterling, and employed some 50,000 workmen; but in the 'seventies the number of workers had declined to some 20,000. Although the manufacture is of high antiquity—a specimen from Thebes, now in the British Museum dating some two thousand four hundred years before the Christian era—glass was apparently not used for windows previously to th or fourth century A.D.; and in this country windows were very rare even so late as the si century. In Scotland, as late as 1661, the win ordinary country houses were not glazed. F passage in Harrison's "Description of Englan inferred that glass became fairly common in houses in the reign of Henry VIII. Harrison "Of olde time, our countrie houses instead of did use much lattise, and that made either of or fine rifts of oke in checkerwise. I read al some of the better sort, in and before the time Saxons, did make panels of horne instead of and fix them in wooden calmes; but as h windowes is now [1584] quite laid downe in place, so our lattises are also growne into because glasse is come to be so plentiful, and verie little so good cheape, if not better than the

* * * *

It was not until the sixteenth century th manufacture of glass assumed any importa England, where, however, it had been much introduced—probably during the Roman occu It has been said that the first plates for looking- and coach-windows were made in 1677 at Lamb Venetian artists employed by the Duke of B ham; but Evelyn notes in his diary in 1673 a vis Italian glasshouse at Greenwich. Venice wa long time supreme in glass manufacture, but subsequently took the lead, and when, in 17 British Plate Glass Company built its extensive at Ravenhead, near St. Helens, Lancs, workme imported from France, whence for many years plate-glass had come. It is worth recalling th was occasionally used decoratively in arch during the best period of Greek art: for Stu Revett, in a note on the temple of Minerva P Athens, call attention to "a remarkable sing observed in the capitals of this portico"; "the torus between the volutes having been inlaid interstices with coloured stones or glass." I will be remembered, has a strong story of a figure of a lion with eyes of emerald that ha removed because they frightened away the fishe bating the imaginative detail, the story is t extent supported by a striking peculiarity marble lion brought from Cnidus to the Museum by Mr. Newton. Its eye-sockets are as to suggest that they were once filled with

* * * *

Stuart and Revett seemed to fear that the would regard the Greek addiction to colour as scandal. Referring to one of their drawings Temple of Theseus, they say: "The figures lower part of the plate are representations of orn painted in the soffit of the lacunaria. This . . . to which it is yet hardly possible to re habits of taste and feeling, seems to have been lied extensively to the decorations of this temple. only have simple ornaments been painted in, but ices, capitals, ceilings, and backgrounds, were thus inguished. The carved metopes and friezes were, ll appearances, almost as completely subjected to processes of colouring, as if they had been regularly orated by the painter on a plane surface: nothing ns to have been trusted to the relief but the effects ight and shadow. The armour was touched with ze and gold; the draperies were of various hues, ng which blue, green, and red, may yet be disuished; the sky still bears the traces of its proper and everything appears to indicate that the Greeks er did not know—or, knowing, deliberately rejected hat would now be considered as an essential nction between painting and sculpture." We think the Greeks knew; for in their day "Thou shalt ' was probably as cheap a shibboleth in art as it is r own, and the Greeks would delight in flouting it, o the daring spirits of to-day.

* * * *

mong these is Mr. Halsey Ricardo, whom we are sed to see still sticking to his colours. Lecturing e Birmingham Architectural Association last week, Ricardo drew a rather alluring imaginary picture e Nelson Column on a grass-plot, with the shaft e column navy blue, the bronze capital gilded, the also gilded (a "Golden Lion" seems somehow to l the times of refreshing), and Nelson's clothes ed in their original dyes. And why not? For, as rt and Revett say in a cautious addendum to their gia for the colouring in the Temple of Theseus, vill, however, still remain to determine whether this t or artifice; and whether, in our estimate of these ers, we do not often suffer conventionalities and cupation to interfere with our reasonings conng the legitimate objects and limits of Art."

* * * *

the Bill introduced into the House of Commons arch 9, Government assumes power to take over factory or workshop of whatever sort, or the plant of," for military or naval purposes. As Mr. Bonar was prompt to say, the powers now assumed are most drastic on record for this country, for they e the Government "to go to any factory and tell what they are to make and what they are not ake, or to go to any factory and tell them that machinery is not being employed to the best ntage, and that we are going to take it away and for another purpose." While it does not seem ble that, under these powers, building plant will xtensively commandeered, there is clearly a bility that in some few instances such power lations may tempt confiscation. But the chief venience that is likely to arise will come through possible diversion of founding, engineering, smithing energies to naval and military uses. however, is hardly a matter of immediate concern, stocks on hand of hardware, iron and steel, and builders' supplies are probably sufficient to meet quirements for months to come. From our point ew, therefore, the Bill may be regarded with t equanimity.

* * * *

nmarising in a sentence the results of a careful igation into present prices and future concies, Mr. E. F. Harmer, F.S.I., in a paper prefor the Southampton Chamber of Commerce, ides that "those persons who think that they will more cheaply after the war will be liable to a sad ning." His calculations show that the present ance to build, whatever may be its cause, is cernot justified by a fair consideration of present He proves that the increase on a dwellingcosting £1,500 is no more than four per cent.; on a £5,000 shop and stores, it is only two and a half per cent.; and on a £50,000 factory it is not quite one-sixth of one per cent., the owner getting, as we have pointed out on a previous occasion, a building of up-to-date fire-resisting construction, with little or no timber in it. Diminished incomes, and uncertainty as to the future trend of events, are no doubt as deterrent as present prices; but these excuses are of much less validity with respect to business premises, such as shops and factories. In any case, there is every assurance that to build now is to build in advance of a very considerable rise in prices that must inevitably occur as soon as peace is in sight. Not only will the demand for materials become abnormal to a degree never before experienced, but there will only too certainly be labour difficulties such as those that are already foreshadowed by the demand, in London and elsewhere, for a large increase in wages (in London the men are now asking for twopence an hour more) which will put a further heavy premium on delay. With respect to business premises, time is an even more important consideration than expense; but those who build now will secure a double advantage—they will not only build cheaper than those who dally, but will get ahead of them in readiness for the increased volume of trade which may be confidently anticipated.

* * * *

Simultaneously with a discussion in Glasgow of a revised system of measuring—and the mystic art of the Scottish measurer is full of occult subtleties with which the mere Southron dare not meddle—there was reprinted from the Transactions of the Devonshire Association an interesting paper on "The Use of a Norse Standard of Measurement by the Normans in Eleventh and Twelfth Century Buildings, as exemplified in the structure of Torre Abbey and the Churches of Kingskerswell and Cockington," by Mr. Hugh R. Watkin. There is evidence, Mr. Watkin thinks, to show that the architects and builders of the eleventh and twelfth centuries in this country used the same Norse measurements which are to be found in Russia at the present day—namely, the *sajene* of 7 ft., and the third part of that measurement—that is, 28 in.—known in Russia as an *arschine.* We must confess to some degree of scepticism about such theories, which usually have but little value beyond affording agreeable and harmless exercise for the bland antiquarian imagination. Doubt does not diminish when the author goes on to expand his theory by the ingenious suggestion that the measurement of the *sajene* "was the practical length of a spear, the haft of which grasped by both hands is perhaps more readily and accurately divided into three parts than into two, as gauged by one hand guided by the eye." It would be surprising to hear that those spears were standardised. Still, Mr. Watkin's theory should lend a fresh interest to the pleasant toil of measuring and drawing. Why the naves of Romanesque churches in England were narrow is explicable without much imaginative effort. English oak does not grow tall, nor give "long sticks," and hence the roof timbers did not admit of wide spans.

* * * *

It would be folly to deride Mr. Watkin's theory of the spear as far-fetched, seeing that in the names of our measures there are so many indications of similar origin. Have we not the rod, pole, or perch, the hand, the foot, and the yard? Indeed, the etymologists tell us that the word yard meant, in Middle English, a stick or a rod, and is probably related to the Latin *hasta*, a spear, which brings us within measurable distance—that is, within four feet—of Mr. Watkin's Norse weapon, the use of which, however, could not have been independent of the fact—may, indeed, have been a corollary of it—that the present-day legal foot was enforced as early as 950 A.D.

HERE AND THERE.

THE Post-Impressionists, Cubists, Futurists, have been at it again, this time "The London Group" at the Goupil Gallery. And walking through the rooms one feels increasingly sorry for them. When the game was first started it tickled the fancy, and crowds flocked to see and to snigger. But the very best joke will not bear constant repetition, and the Cubist joke was not really a good one at the outset. Then came the serious young men, who felt no qualms about throwing over the whole baggage of such mistaken notions as, incidentally, had animated Rembrandt, and Velasquez, and Reynolds, and the rest. The old manner was played out, and if Art was to revive at all, an entirely new conception of it was essential. The Impressionists offered a good starting point, more especially as they presented a reasonably sane theory of painting; and then the merry game went on from extravagance to extravagance. Nothing was impossible to it. For the most puerile daubs and the most imbecile scrawlings, serious attention was claimed, and though it is taboo now to mention Ruskin's name in connection with any estimate of Art, the select few will perhaps pardon a passing allusion to a picture which looked like a squad of beetles in search of a dead rat, and the even more illuminating reference to a man who was searching in a dark cupboard for a black cat that wasn't there. What is wanted, the innovators tell us, is a set-back to all this smug slickness in painting. If we are to advance we must give up the stupid old way, talking very seriously of beauty, and seeking to pourtray Nature as we see it, and Man and Woman from the standpoint of anatomy and form. There is better work than this to do. We must seek out the inward spirit, the driving force, unseen, unseeable, but to be felt by the true followers of the cult. You may laugh at those weird shapes which can just be distinguished as human beings, hopping together, a tangled mass of limbs and bodies—men with green heads, with shanks like spindles, and arms as big round as half a dozen Hackenschmidts rolled into one. But here is vividly recorded the real spirit of "The Dance," say the enlightened ones. And possibly after gazing at enough pictures of this kind you may reduce yourself to such a peripatetic state of dottiness as will enable you to realise that this is after all a splendid idea. You can see the figures dancing; you may be dancing yourself. Yet having reached that condition, you are but a few steps along the hallowed path which leads to the Sublime Joke. It is when you are confronted with a reckless mass of stripes of colour, with what looks like a railway signal here and a bathing machine there and a slice of bacon a little farther up, that you begin to realise the complexity of the business.

* * * *

"The London Group" offer plenty of this sort of thing. There are the *chef-d'œuvres* "Blackpool" "Rotterdam," "The Crowd," which may be anything or nothing or stirring and wonderful achievements, according as you are qualified to be received with open arms at Colney Hatch, or not. And you will be in the same fix when confronted by "Boxers." Of course you can't see the vestige of a boxer, though a big label tells you it is "Kid Lewis v. Jim Berry at the Premierland." But that is your misfortune, not the artist's. Similarly, being a pitifully unenlightened person, you will mistake the dramatic representation of "One of Our Shells Bursting" for a sketchy note of a microbe magnified to ten diameters.

* * * *

Do not let it be thought, however, that the works of "The London Group" all reach this high level. There are paintings of buildings, for instance, which are clearly buildings and not streaks, and even a sublimity of "Suburb Evening" did not debar me from recog-
nising Mr. Baillie Scott's work in that place whi
Beyond the Heath. There is, too, the fron
"Boodle's Club" for your impassioned gaze, and
pictures challenging comparison with "the hectic
of salmon on the pavement." Pictures, too,
actually carry on in some degree the pleasantne
the old way in painting. The first picture in the
for example, is of a bridge leading over to a co
town, and though the manner of spreading on
thick and fast might be really shocking in the
exhibition, here, in the midst of so much that is bi
it is perfectly delightful; and there are several o
of the same sort.

* * * *

But it is not until we come to the scul
exhibits that the utmost heights are reached.
is "Rock Drill," a nightmare figure of such a m
never was, astride a full-size rock drill;
absolutely repulsive figure, such as might b
to an underworld of human degradation;
shapely, angular, with a head like the half-f
skull of a monstrous creeping thing. And of the
breed is a figure in the main room, perched
pedestal so that we shall miss none of its effect; a
figure which looks as though it might have been c
by some muttering savage in the dark days of cre
a figure beyond the pale of reasonable thought
only proper thing about it being its title—"Curs
the Day wherein I was Born."

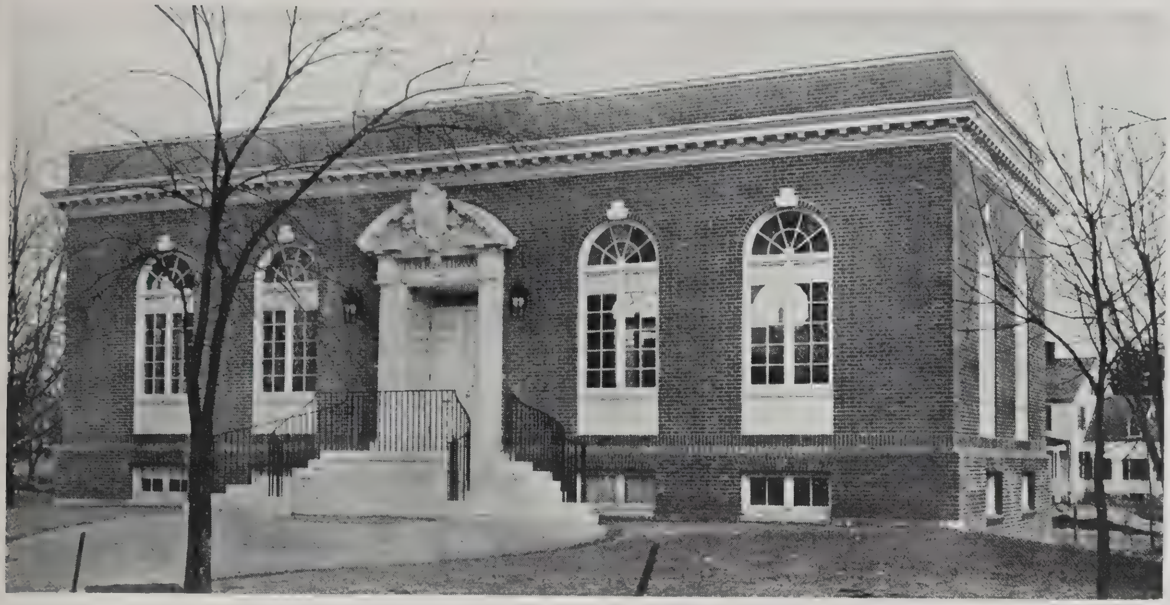
* * * *

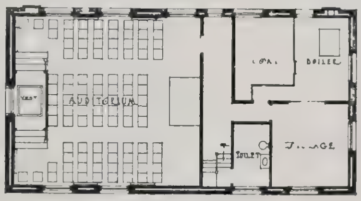
Not that these makers of Art anew could not
same kind of stuff that goes so merrily to the
Academy. On the contrary, many of them can
and paint and carve with the best of the others.
is there any lack of brilliant young men who ar
pared to argue with us on the subject, upsetti
antiquated ideas that prevent Art from doing an
fresh. They make a rare splash with a new j
This revolution, they affirm, was wanted. "New
abounded, and the old bottles were found wa
These artists are of the movement because, in ch
subject, they recognise no authority but the trut
is in them; in choice of form, none but the n
expressing it. . . . . We can regard an
solely as a means, and feel emotion for it as such.
possible to contemplate emotionally a coal-scu
the friend of man. We can consider it in rela
the toes of the family circle and the paws of the
dog. . . . How, then, does the Post-Impres
regard a coal-scuttle? He regards it as an end in
as a significant form related on terms of equalit
other significant forms. Thus have all great
regarded objects." And so forth.

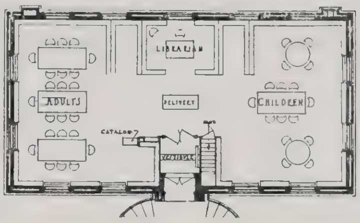
* * * *

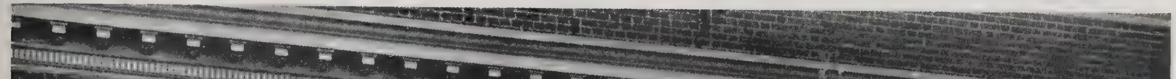
I suppose the real truth is that these frenzied
menters are trying to translate emotion into te
paint, a thing which cannot be done; and
swaggering of the coterie will not prevent them
being regarded as either poseurs who have f
trick that brings them into notoriety, or self-d
artists who are making asses of themselves.
world is mad, we have been told; but it is alw
other man who is; on the same principle as
Carroll's jam distribution—jam yesterday, j
morrow, but never jam to-day. And not to be fo
is the specious retort that innovators have alwa
to put up with ridicule and attack. But there
another tale to tell, and *l'Art Nouveau* poi
moral: it was of yesterday, and the enth
chortled over every expression of it; it was to be
the New Art of the world. As matters turned
critic killed it, and he never did a better wor
too, this hare-brained business which the F
stand for will soon be as dead as a door-nail, a
dead; for there is an unwholesome air about it.

UBI



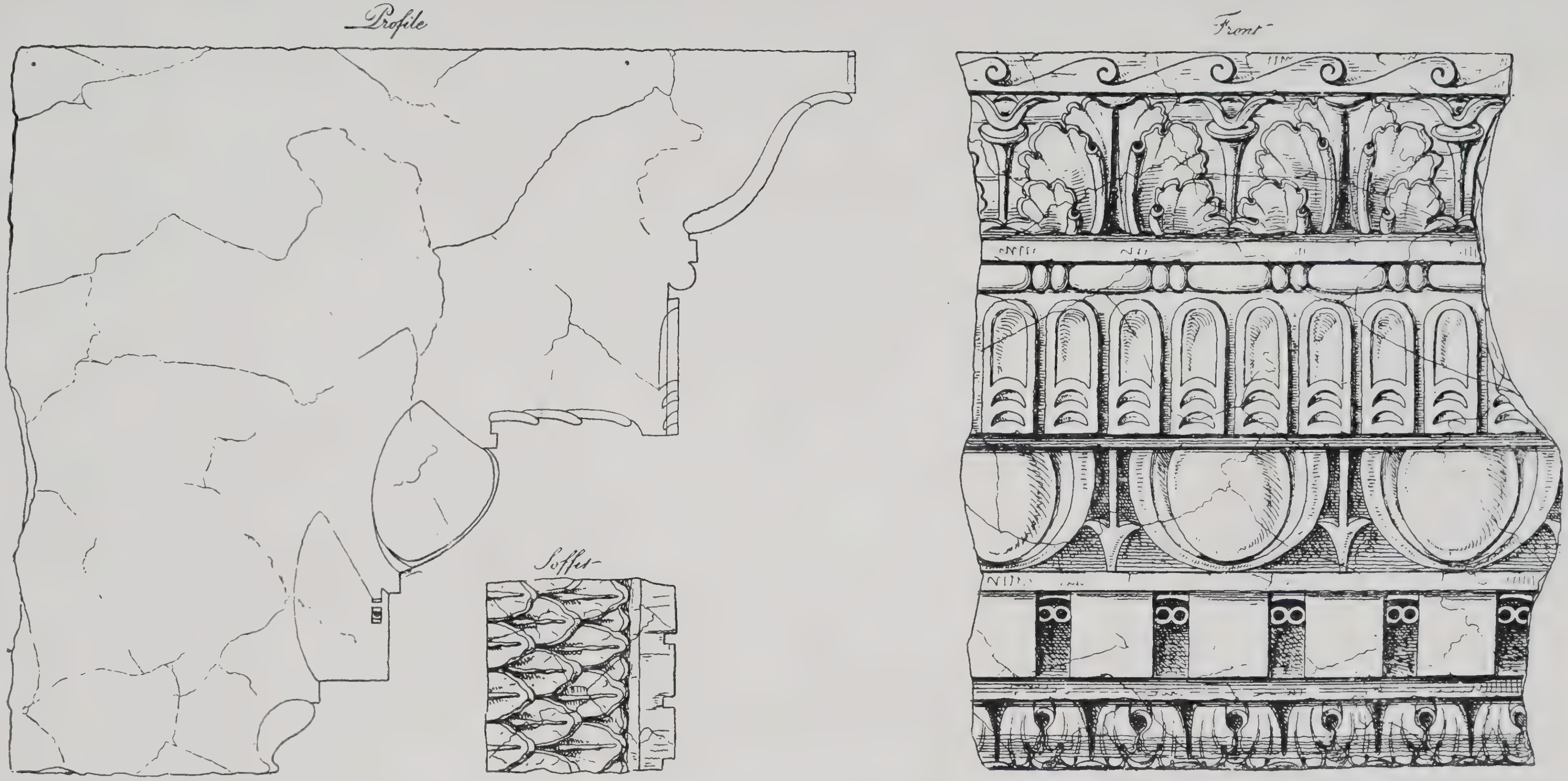




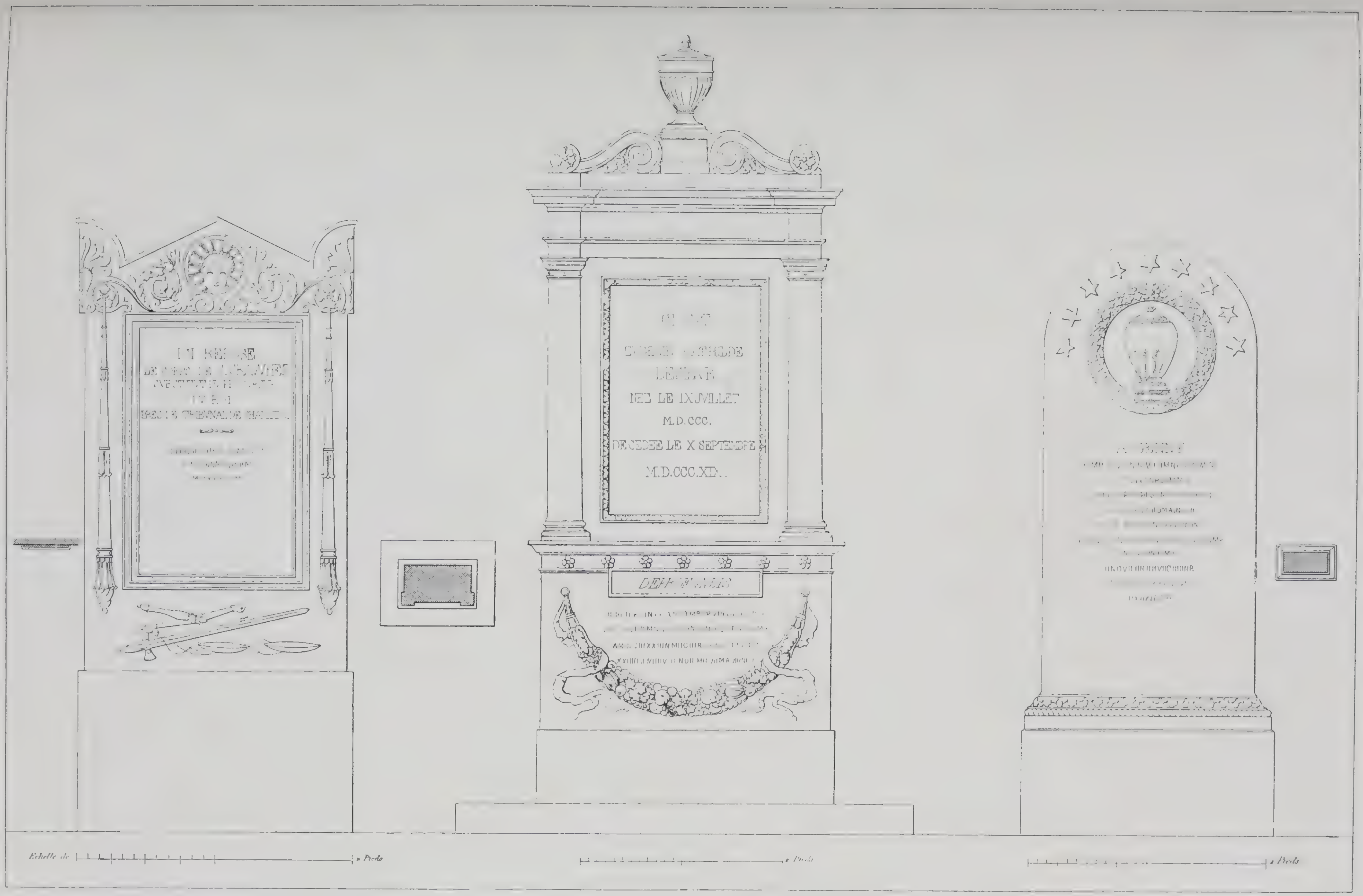


MODERN AMERICAN ARCHITECTURE (SERIES II.). XV.—CARNEGIE PUBLIC LIBRARY, SHARON, MASS.

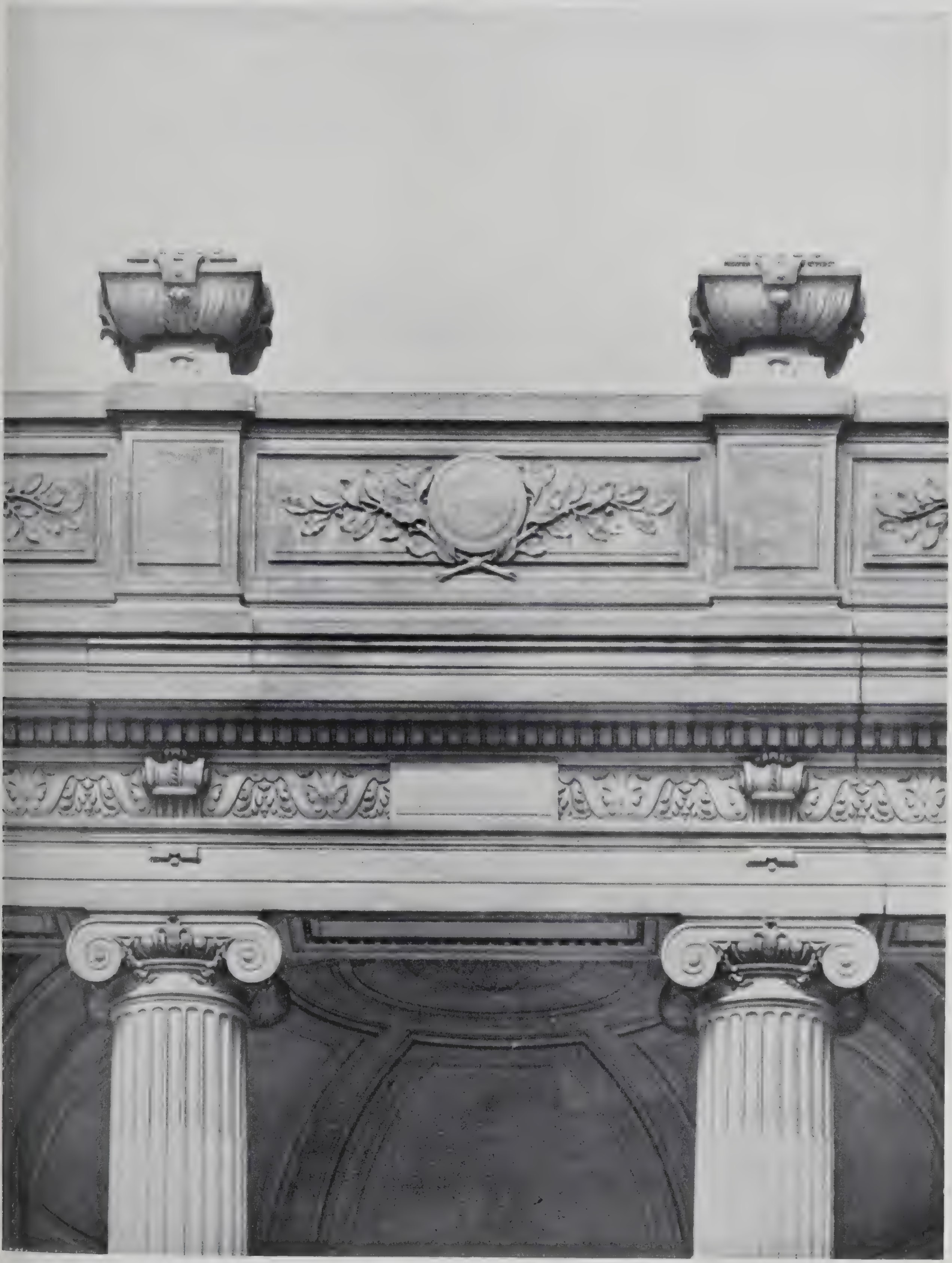
C. HOWARD WALKER, ARCHITECT.



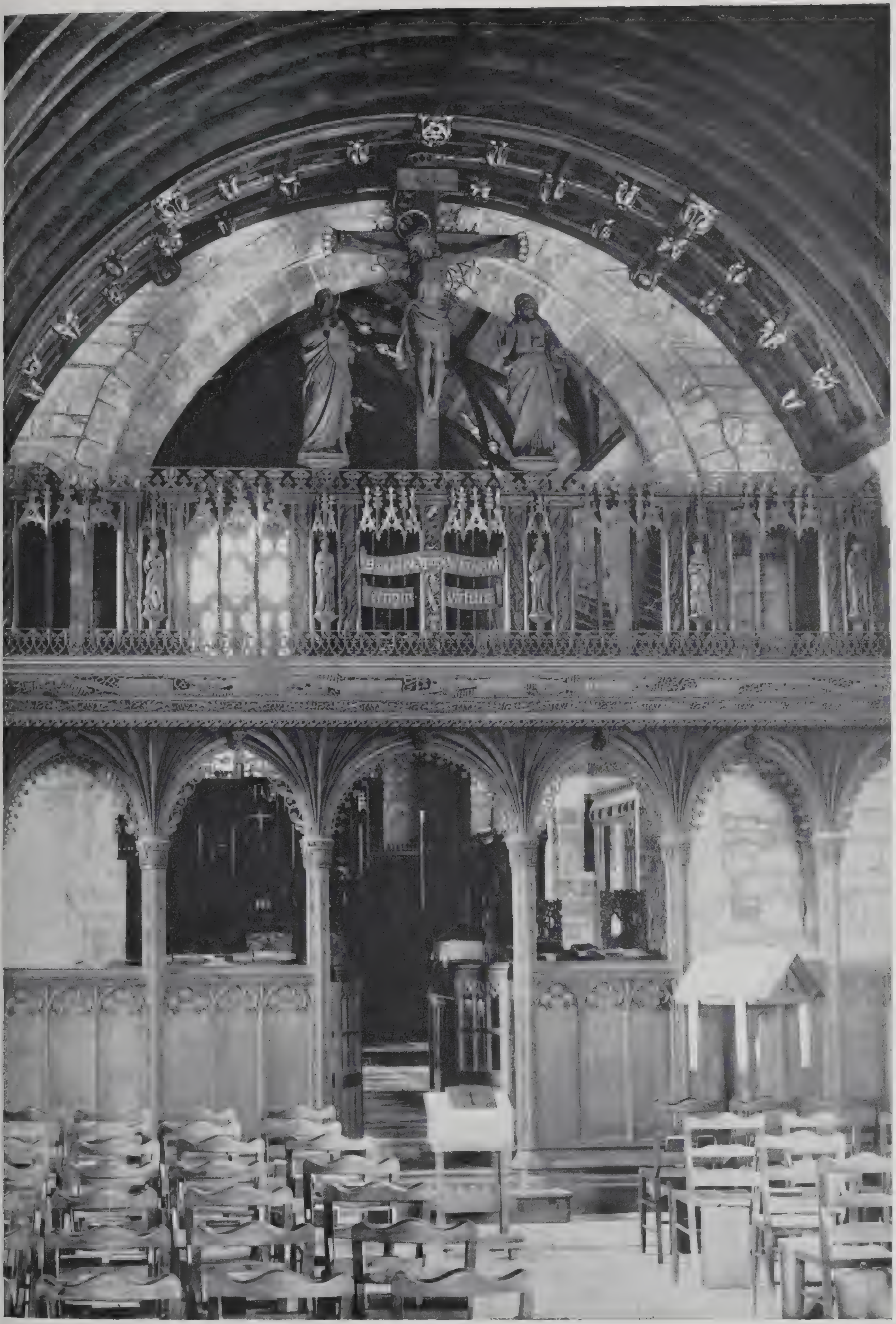
DRAWINGS OF ROMAN ORNAMENT. V.—FRAGMENT OF MARBLE CORNICE FROM THE VILLA BARBERINI, NEAR ROME.



FRENCH MONUMENTS. VIII.—THREE MONUMENTS BY SCHWIND.



DETAILS OF CRAFTSMANSHIP. X.—STONE CARVING ON PAVILION, MUSEE GALLIERA. PARIS.
GINAIN, ARCHITECT.



CURRENT ARCHITECTURE (SERIES II.). XIII. – CHANCEL SCREEN, ST. CRANTOCK CHURCH, CORNWALL.

EDMUND H. SEDDING, F.R.I.B.A., ARCHITECT.

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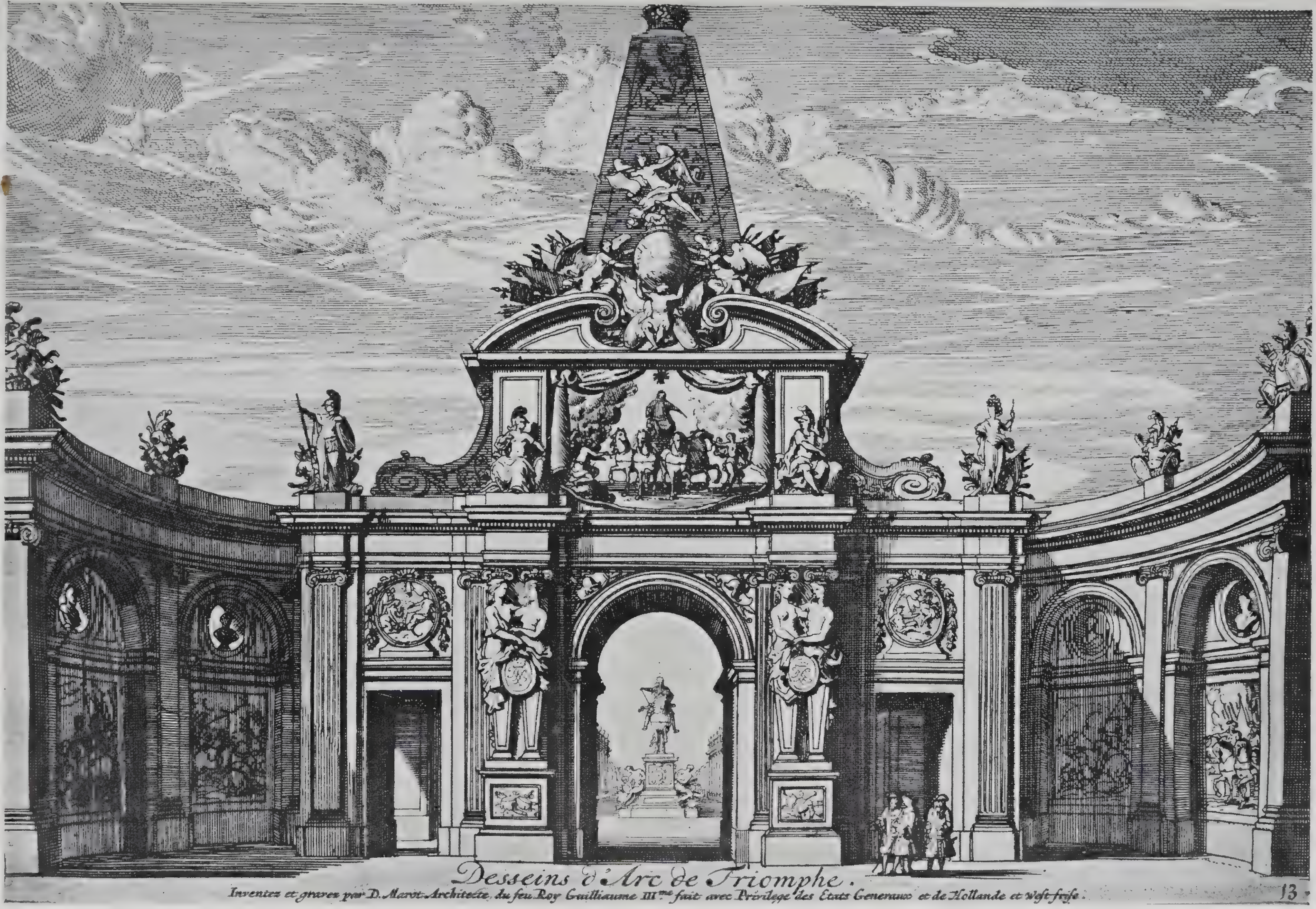
Desseins d'Arc de Triomphe.
Inventez et gravez par D. Marot Architecte, du feu Roy Guilliaume III.me fait avec Privilege des Etats Generaux et de Hollande et West-frise.
13

DESIGNS BY DANIEL MAROT. I.—TRIUMPHAL ARCH.

ARY
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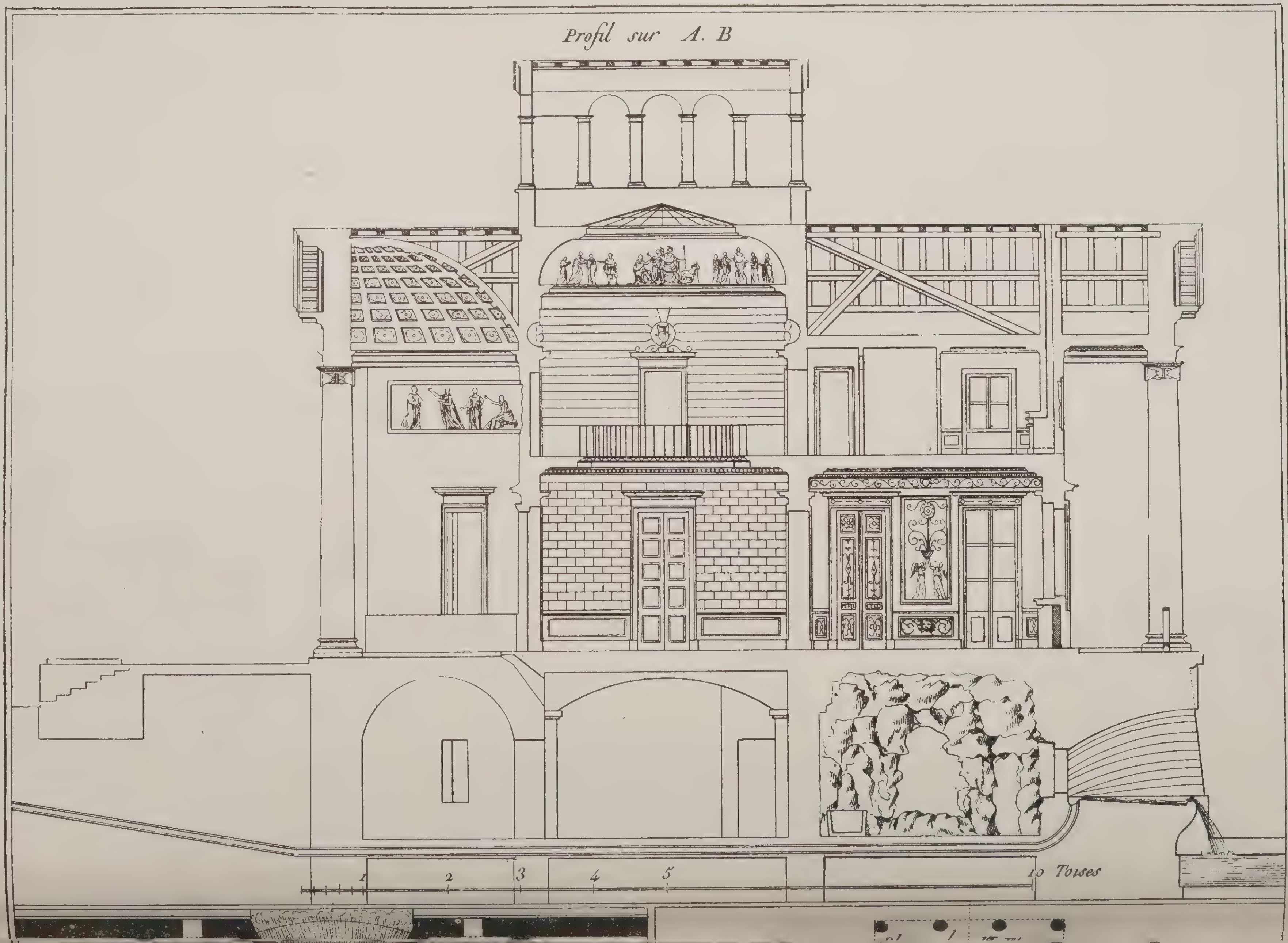
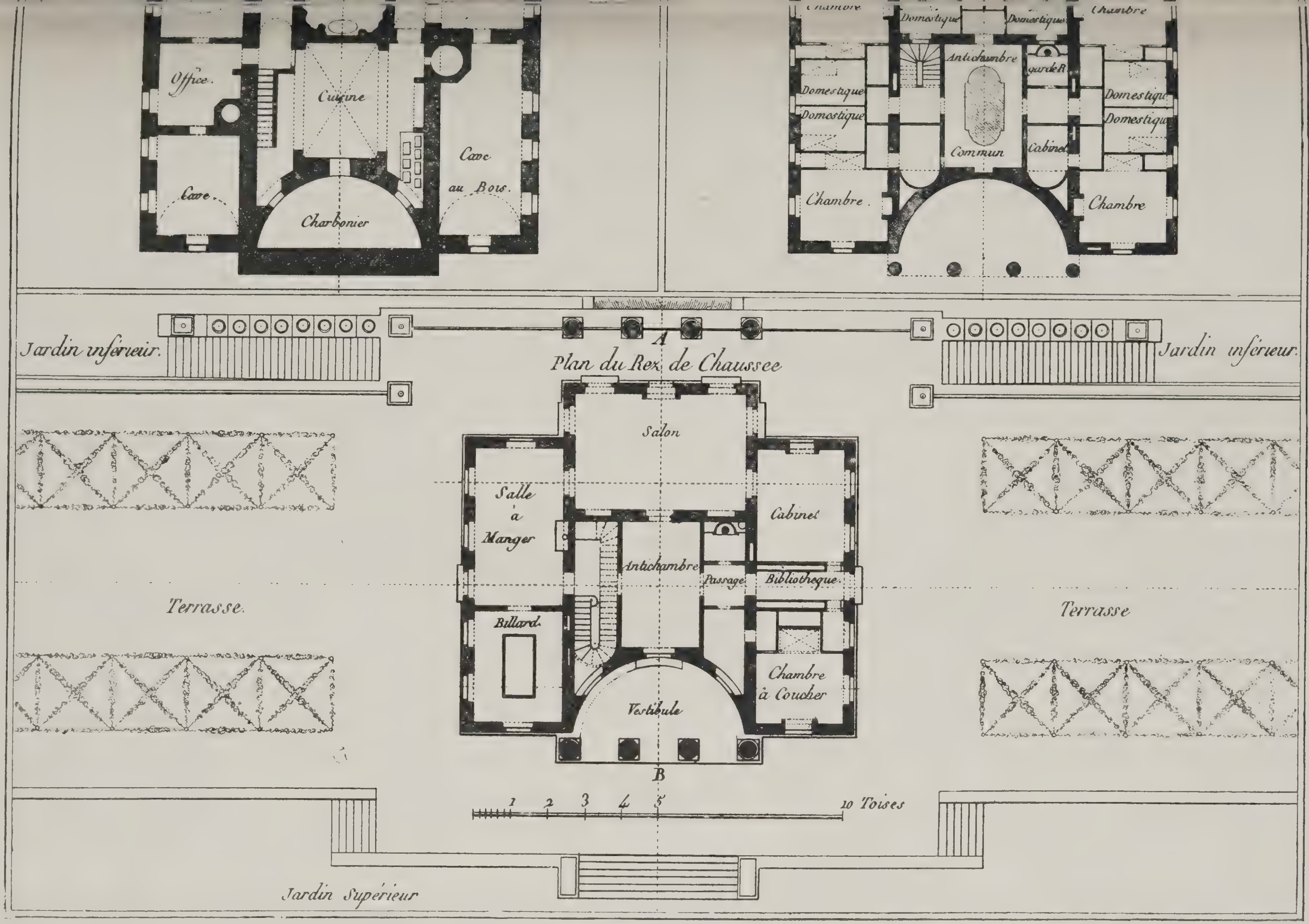
Y OF ILLINOIS

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS


Profil sur A. B
10 Toises



DESIGNS FROM KRAFFT. V.—CHATEAU DE MEUDON.

MANDAR, ARCHITECT.

THE PLATES.

A Small American Library.

great libraries of the United States are notable
or the fine scale on which they are conceived,
nd the scholarly character of their architecture.
y satisfactory are the small libraries, though,
ly, these do not offer the same possibilities for
But that the simplest building can be rendered
leasing is apparent from the Carnegie Public
y at Sharon, Mass., which we illustrate this week.
ie libraries in this country are, for the most
ery mediocre; that they might be very much
s well shown by this small American library by
Howard Walker. The building has been care-
ought out, and good materials are used in its
ction; the contract price having been £1,940.
he plans it will be seen that an auditorium was
d in the basement, and in providing this the
ct has taken full advantage of the slope of the
l in order to reduce as much as possible the
of the basement on the front.

Cornice from Villa Barberini, Rome.

richness of the ornamentation on the members
cornice is characteristic of Roman work. It is
cularly fine example of its kind.

Three French Monuments.

e three monuments, little more than headstones,
different towns of France. All are of good out-
ith tasteful embellishment; the centre one, to
ie Bathilde Lesieur (d. 1819), showing a
ly use of classical elements. Schwind executed
many monuments of this period.

Detail of Musée Galliera, Paris.

Ginain was one of the most brilliant of what
called the school of yesterday in France, and
usée Galliera is among his best works. It was
l between 1878 and 1894 to receive a collection
ures, statues, etc., bequeathed to the City of
y the Duchesse de Galliera. The plan of the
g is very simple, comprising a large central hall
nall rooms around. On either side a pavilion
xtends, and it is from one of these that our
s taken. A few biographical notes on Ginain
ere be added. He was born in Paris in 1825.
ered the Ecole in 1843, where he studied under
and ten years later won the Prix de Rome with
rkable composition for a public gymnasium. In
urse he went to Rome and to Athens, and there
d himself to the study of the great Classic
gs. On his return to Paris he was appointed
or of works on the new Louvre, under Lefuel.
afterwards he entered the competition for the
péra, his scheme being placed first; but it was
opted, and in a second competition for the
g the choice fell upon Garnier. To Ginain,
ly, this was a bitter disappointment, but his
vas not in vain, for Baron Haussmann took
of it, and appointed him as one of the architects
reconstruction of Paris. In this way he built the
of Notre Dame des Champs, the Hôpital La
ité on the Avenue de l'Observatoire, and, finally,
ole de Médecine; which last building gave him
nce of creating a masterpiece. Meanwhile, he
arried out several important works for the
sse de Galliera, the last of which was to be the
Ginain was not wholly a constructor, but also
ier, and his rôle as such was a great one. He
1898 at the age of seventy-three.

Screen in St. Crantock Church.

screen, which is 42 ft. in length, extends across
ancel and chancel aisles. It is entirely new
arried out to Mr. Sedding's design, there being
left of the old screen in the church except four
y moulded uprights united by a rude transom,
which have been incorporated in the new work. The figures in the upper part or "gallery" represent the Evangelists, with the Crucifixion in the centre—after the old order of things. The portion of the nave roof above has been panelled, and enriched with carving and gilding. All is of the best oak.

Design for a Triumphal Arch by Daniel Marot.

Daniel Marot was of those Huguenots who left France upon the Revocation of the Edict of Nantes in 1685. He went to the Netherlands, and there became architect to William III.—the stadtholder who came to England and was known as "Dutch William." Daniel Marot, son of the celebrated French architect and engraver, Jean Marot, was employed on many large schemes in Holland—such as the lay-out of the gardens of The Hague and Loo—and also upon others in England, where he was principally concerned with Hampton Court. In 1712 he published in Amsterdam a volume of engravings of designs for all manner of subjects, from triumphal arches to trappings for horses, and it is from an original copy of this valuable work that we are reproducing the present series. Marot carried on the exuberant character of French design of the Louis XIV. period, and though one often feels that his designs are overwrought, there is a wealth of suggestion in them, and in his decorative schemes a richness of effect which well repays study. The design for a Triumphal Arch illustrated this week is one of a number of the kind which he prepared. They all embrace some central monument to his royal patron, in which respect they follow the practice which Louis XIV. himself so much esteemed.

House at Meudon.

This plate should be studied in relation to the illustration of the façade of the building which was given in our issue for March 3. The plans are no less interesting than the interior treatment. On one side on the ground floor is a salon centrally placed, with a dining-room leading out of it and a billiard-room opening off this latter—reminding us that accommodation for billiards is no modern requirement. On the other side are a private room, with a queer library adjoining it, and a bedroom balancing the billiard-room. In the basement is the kitchen, surrounded by caves of the same freakish order as Pope's "grotto"; while on the first floor we may note the manner in which the servants' bedrooms are stuffed in between those of the household. The special features of the house are the fine central "well" and the semi-circular porch next the terrace: both of great interest architecturally.

THE BURGHERS OF CALAIS

THE following letter has been addressed to the Editor of "The Times"; "Sir,—Tied up in our ample tarpaulins, we are snug enough on these cold nights on our pedestal in the Victoria Tower Gardens, and if we thought only of our own comfort we would let well alone. But—but—oh, you dear English, don't you see that to keep us concealed is hardly polite to Monsieur Rodin, who gave us to you! Unveil us then, silently and without any fuss, as Mademoiselle Nightingale was unveiled the other day. Ah, you did not think we should hear about that little affair, accomplished with the so British precision and phlegm. But of course. Have we not been elected members of l'Association Centrale des Monuments Sculpturals de Londres? The next candidate for election is the très honorable Huskisson, a Roman chieftain sadly overthrown in a railway accident, who is to be accommodated in a garden like us, but farther down the river. You see, we know everything. You will not leave the excellent Monsieur Huskisson enshrouded in tarpaulins?—Agréez, Monsieur, etc., The Burghers of Calais."

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper. Every communication must bear the name and address of the sender.

Prout's Architectural Sketches.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—For once I find myself utterly unable to agree with an opinion expressed in your "Editorial" columns, in which, in your issue of March 10 on p. 112, you speak disparagingly of Samuel Prout. As this artist has been always a prime favourite with me, I regret to see that you think so little of his work. Surely your criticism must refer to black-and-white or monochrome reproductions, which, however well made, cannot be expected to do full justice to water-colour originals.

Prout, I think, deserves the gratitude of our profession for the legacy he has left us of many scores of sketches of notable buildings. If these show the hand of the artist rather than that of the architectural draughtsman, so much the better, for they thus mark a difference of regard that is surely valuable to the architect as revealing how a trained layman sees buildings that, one suspects, wear a special aspect when looked at with the professional eye.

To me it seems certain that while Prout, like other artists who are not architects, and who aim at pictorial rather than architectural effects, occasionally slurs over an architectural detail which, on the other hand, would most likely receive too much prominence at the hands of an architect sketcher, he followed, on the whole, the better method. There is much the same difference, I suggest, between Prout's sketches and those generally produced by professional architects, that distinguishes a portrait by Sargent or Lavery from a clever fashion-plate. The latter may show much more intimacy with the conventions of clothing, but will emphasise them past endurance; and this professional exaggeration is precisely the fault of most architectural sketches. They are not pictures, but architectural fashion-plates. Even when the building represented is not a new design, but as ancient as those beloved of Samuel Prout, the architect insensibly reads into it a certain amount of restoration which robs it of much of its ancient complexion; which is the opposite fault to that of which Prout has been accused—his much-discussed "broken line" giving often an appearance of decay that could not be verified from the building depicted. If you will allow me to say so in all courtesy, I fear that your condemnation of Prout—to whom I am sure you would not willingly do an injustice—may have been dictated by an unconscious bias in favour of the purely professional sketches which you doubtless see and handle in great numbers. As a last word, I venture to suggest that your adverse opinion of Prout might be greatly modified if you would judge him by his exquisite pencil sketches rather than by his water-colour sketches, or by the pictures reproduced by either the old or the newer processes.

London, S.E. PICTOR IGNOTUS.

[The urbanity of our correspondent utterly disarms us, and we freely admit that there is much truth in what he says of Prout as well as in his observations upon sketches made by architects. We are quite familiar with Prout's pencil drawings, of which, it may be useful to recall, there are some excellent specimens in the museum of the Brassey Institute at Hastings, in which town Prout lived for some time when his health was failing. Prout's many merits we willingly acknowledge, but we do not think that they include the vital and essential virtue of a full sense of the character and individuality of buildings. He saw them only
external aspects, and, we think, without that d
feeling which, in spite of our correspondent's d
quite commonly present in sketches by arc
many of whom, when drawing old buildings,
strict subordination to artistic effect their prof
knowledge of structure and detail. The best
are more successful in rendering unobtrusive
that they are architects than was Michelangelo
cealing the over-exuberance of his knowle
anatomy. But our admiration and gratitude for
work, and for his fine character as a man, sh
persuade us to over-praise him.—EDS. A. and

Position and Prospects of Building.

To the Editors of THE ARCHITECTS' AND BUI
JOURNAL.

SIRS,—In case it might not otherwise come
notice, I take leave to draw your attention to
consider to be a most helpful review of the posit
prospects of the building trade which ha
presented by Mr. E. F. Harmer, F.S.I.,
Southampton Chamber of Commerce.

Mr. Harmer, after showing by carefully c
figures that the cost of building is at prese
sufficiently high to account for the wholesale abs
from it which is so detrimental to the country
strong reasons for the assumption that after t
prices will go up enormously, because of th
demand for materials for making good the
done in the ravaged countries.

That, of course, is conjecture; but it is very
able conjecture. Of perhaps more practical int
Mr. Harmer's survey of the position and prospec
respect to various materials of constructio
cerning timber he says: "The demand for this
is of such a nature that next summer there ma
scramble for it, with serious results to everyone
Germany. Competition should be as far as
eliminated; shippers should be encouraged to
much as possible, and ample facilities sho
provided to bring it across to this country;
necessitates prompt action by someone in a pos
tackle all these factors in a proper manner
present conditions. There is no doubt that
ment action is called for in this matter. Rus
obtained extensive credit from this country. T
the shipment of gold, this credit could be
discharged in timber, shipped from White Sea
competition could be eliminated as was done in t
of sugar, so that a corner could be prevented a
profits could be ensured to the merchants. It
necessary to buy on behalf of Belgium, but th
matter for the Government. It is necessary, h
to handle this question of timber properly in o
prevent unemployment in perhaps the most im
trade in the country, i.e., the building trade.

"With regard to glass, the question is so
different; it is not a structural but a finishing m
It has been in the past chiefly imported from B
and Germany, the amount manufactured in this c
being very small. There are, however, one or tw
manufacturers, and perhaps they could be per
to increase their output, or perhaps we have
Belgian glass workers in this country to enabl
works to be started.

"Glass used to be made in the New Forest yea
so that some of the materials are found arou
district. The other item mentioned is lead.
speaking, this increased in value before the war
have a suspicion that the demand might hav
influenced by Germany buying in preparation f
Fortunately, however, lead can be easily repla
other materials, its use being to a great extent a

"Copper roofs exist that have been in u

ds of years, and at the present prices it would
ally cheaper than lead. A recognised thickness
er for ordinary roofs is 16 oz. per foot super, and
inary flat should not be covered with less than
lead, in other words, even when its cost is more
ve times that of lead per ton it can be used
of lead without extra cost. At the present time
is about three times the price of lead, and a
of about 25 per cent. can be effected on this
This morning's—25/2/15—prices, are: Copper
r ton, lead £20 per ton, so that the saving would
t 45 per cent. If, however, asphalte is substi-
and laid in two coats ¾-inch two thicknesses,
s the usual, a saving of over 60 per cent. could
cted, and the usual guarantee for this work is
rs. Wood can, of course, be replaced by iron
crete for structural work. Wood flooring can
aced by composition floors, and although it is
ible at the present to do away entirely with the
wood, sufficient saving can be made on other
ractically to offset the increase of cost.

ere is one more item, and that is: Would it be
e for the Local Authorities to agree not to
e the rateable assessment, in cases of rebuilding,
ter the war as an encouragement to builders to
e operations? This is a fair statement of the
, and, I believe, shows that it is a case in which
action should be taken by the Chambers of
erce throughout the country."

st that you will be able to give the above
s in full, as they seem to me to be of considerable
nd importance at the present juncture. I have
y found them encouraging to clients, before
I have had no hesitation in placing them.

hampton. P. J. D.

have dealt with Mr. Harmer's paper, of which
y appreciate the value, in our Editorial columns;
e have reproduced, on p. 128, a summary of
s of it which our correspondent has not quoted.
. A. AND B.J.]

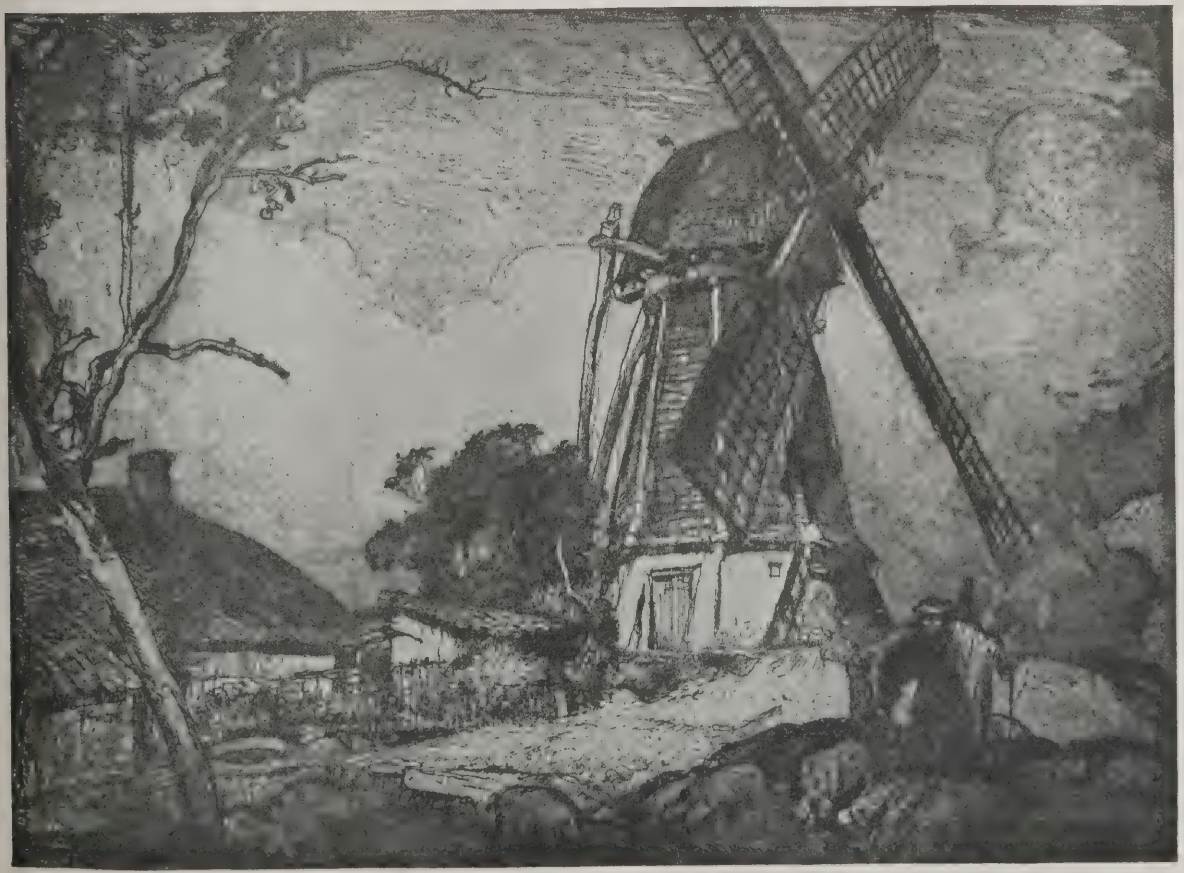
FURNES AND DIXMUDE.

FURNES and Dixmude, two little places on the line of battle in Flanders, once possessing fascinating relics of mediæval building and many a fine example of the carver's skill in wood and stone, have been utterly laid waste by shell-fire. Hence the special interest attaching to the series of reproductions of Mr. Frank Brangwyn's etchings of these two places which are a feature of "The Architectural Review" for March. Mr. Brangwyn is as great in etching as in painting. "In his painting he employs brilliant masses of colour; in his etching brilliant masses of tone. His etched plates are often very large, and are a direct challenge to the dictum of the ubiquitous Whistler that an etching should be of small dimensions. On this point Mr. A. M. Hind says in his book on Modern Etching: 'Few would be inclined to agree with Whistler's unqualified condemnation of the large plate, but there are few who would not agree with him "that the space to be covered should always be in proper relation to the means used for covering it."' His succeeding proposition, 'that in etching the means used and the instrument employed being the finest possible point, the space to be covered should be small in proportion,' cannot stand in face of Rembrandt's 'Three Crosses,' and has quite recently been answered in noble fashion by Mr. Frank Brangwyn."

The six etchings by Mr. Brangwyn reproduced in the "Review" for March are devoted chiefly to the great churches at Furnes and Dixmude, but among them is "The Mill, Dixmude"—a quite wonderful etching, of which a small reproduction is given below.

In the same issue is a very finely illustrated article on Renaissance Memorials of War—the second of the series which is now appearing in the "Review"; the illustrations to this article, including plates of Jean Goujon's magnificent "Victory" and of the two great equestrian monuments of the Italian Renaissance—the Guttamelata at Padua and the Colleoni at Venice.

The price of the issue is 1s. (post free 1s. 4d.).



THE MILL, DIXMUDE. FROM THE ETCHING BY FRANK BRANGWYN, A.R.A.

THE OUTLOOK IN DUBLIN.

(By Our Special Correspondent.)

In spite of a general spirit of cheerfulness and a determination to carry on as far as is possible, the outlook for the spring as regards building is none too hopeful. One hears of no large work in contemplation, and architects and builders are living as best they can on the little jobs which must be done. Lucky is the man who got a large job started before the war, but he will possibly have to live on this for some time.

The South Dublin Rural District Council propose rebuilding the villages of Chapelizod and Palmerston, and the scheme appears to have nearly gone through the stage of legal formality. This district is a very poor and squalid one, and it is pleasant to think of its being rebuilt under the capable direction of Mr. T. J. Byrne, A.R.I.B.A., the Council's Architect. Anyone who knows his County Dublin is familiar with the delightful new cottages designed by Mr. Byrne that now form so important a feature of the landscape around the city.

I am glad to see that a young Dublin architect, a well-known member of the A.A.I., has been mentioned by Sir John French in his last despatch for gallantry. Mr. Burke is serving as a private in the South Irish Horse.

The Killaloe slate quarries are being offered for sale. I am sure that with careful management a good future should be before this quarry. The slate should be used as a small flaggy type and not split too thin, and if used in this way it makes a good covering and looks very well. It is a pleasant grey-green colour, and takes on a rich tone when weathered. This slate was largely used in Dublin in Georgian times, and many important buildings, including the Castle, are roofed with it. Its general appearance when it has been up some time is very similar to that of Westmorlands.

I see that Professor Goodyear is holding an exhibition of photographs at Yale University. Among them are the pictures of St. Patrick's Cathedral taken last year in Dublin. Speaking of these, Professor Goodyear says, in the catalogue: "The nave of St. Patrick's Cathedral, and the choir of Southwark Cathedral, exhibit that particular type of widening refinement in which the arcade piers are perpendicular up to the arcade capitals, but they show a very remarkable variation from the previously noted cathedrals and churches of this class. At Amiens, Reims, and Laon, for instance, the vaulting shafts lean out above the arcade capitals in absolutely straight lines; but St. Patrick's and Southwark Cathedrals have vaulting shafts which lean out in straight lines only as far as the triforium string-course. At this point they bend abruptly towards the perpendicular, and then continue in straight lines to the springing of the vaulting. This arrangement is a conclusive proof that thrust did not cause the inclination above the arcade capitals." Although we may not all see eye to eye with the learned professor, still, we must gladly acknowledge how much new light he has thrown on an obscure and controversial subject.

There is much talk at present all over the United Kingdom as to the future of various industries after the war is over. In this connection it is noteworthy that a company is being formed in Dublin with the object of establishing glassworks in which a number of skilled Belgian glassworkers will be employed. The company have secured an option to purchase a large plot of land eminently suitable as a site for the works, and containing in addition a sufficient quantity of sand (which has been analysed and found most satisfactory for the purpose) to keep the factory for many years supplied. The promoters state that they have had many tempting offers of sites from English municipal and urban bodies, and English capital can be found many times over to set the business on its feet. It is anticipated that the annual sum paid in wages and salaries will amount, even in its early stages, to £10,000.

P. L. D.

THE SIGN OF THE CIVIL HOSPITAL.

The Home Secretary has written to the Town Clerk of Leeds informing him that in the event of a bombardment by the enemy, or a hostile landing, it is not proper for civil hospitals, asylums, etc., to fly the Red Cross flag as a method of securing immunity from harm. He points out that under the appendix to The Hague Convention of 1907 it is provided that hospitals and places where the sick and wounded are collected, buildings dedicated to public worship, art, science, or charitable purposes. and historic monuments are to be spared as far as possible in bombardments, provided they are not being used at the time for military purposes. It is necessary that such should be clearly indicated by distinctive and visible signs which have been notified to the enemy beforehand, and the sign which it is proper to use is not the Red Cross flag, but a large stiff rectangular panel divided diagonally into two pointed triangular portions, the upper portion black and the lower portion white. The only hospitals which are entitled to use the Red Cross emblem are those which are exclusively under military or naval control or have been granted special authority by the Army Council.

TO CAPTURE ENEMY TRADE.

With a view to making the exhibition of samples which is now being organised by the Commercial Intelligence Branch (Foreign Samples Section) of the Board of Trade of the greatest practical value to British manufacturers, it has been decided to arrange a series of "Exchange Meetings" between importers and buyers desiring to obtain goods hitherto made in Germany or Austria-Hungary and British manufacturers who might be likely to produce similar goods in this country.

These "Exchange Meetings" are being arranged trade by trade, and are held at Wakefield House, 32, Cheapside, E.C. The Board of Trade are inviting the wholesale buyers and importers on the one hand, and manufacturers on the other, to advise the department as soon as possible of their desire to be present or to be represented at any one or more of these meetings, and to supply samples of German and Austrian goods. Firms who are in a position to supply catalogues of such goods should forward them, without delay, to the Director, The Commercial Intelligence Branch (Foreign Samples Section), Board of Trade, 32, Cheapside, London, E.C.

The Board of Trade are particularly anxious that firms supplying samples should understand that every care is taken to ensure that the ordinary channels of trade now existing as between original manufacture and final consumer are not interfered with a a result of this scheme, and any representations which firms may wish to make as to the arrangement or exhibition of their samples with this end in view will receive careful consideration.

EFFECTS OF THE WAR BUILDING.

Mr. E. F. Harmer, F.S.I:, in the
of a paper prepared for the South
Chamber of Commerce, observes:—

It seems to me that if we, as a
are going to do the very utmost
selves during the remainder of the
would be as well to take a general
of the conditions likely to prevail
that time. At present there are
signs that persons who would buil
normal conditions are waiting u
cessation of hostilities before comm
This in many cases is a mistake,
are many evidences that the
materials will increase considerabl
the war. In January, 1915, the onl
ing materials that have shown a
siderable increase in cost are timber
and lead.

At the moment of writing these in
are as follows: Timber, 25 per
glass, 120 per cent.; lead, small a
certain. The reasons for the incr
the cost of timber are the great dem
the War Office and slightly decrease
ments owing to the war. In the
glass, our chief supplies came fro
gium and Germany, and this sourc
the present cut off. Lead need not
us at all, as there are several excelle
stitutes. Now let us see how these
tions effect the ordinary contracts.
first a dwelling-house costing £1,5
this house there are 1,800 cub. ft. of
an increase of 6d. per foot amounts
and 677 sup. ft. of glass at an incr
6d. amounts to about £17, making
of £62 on the cost, or about 4 pe
increase. We now take a shop and
in the centre of the town, costing
it actually requires 3,900 cub. ft. of
amounting to an increase of £9
1,339 sq. ft. of glass with an incr
£30. Totals, £128, or 2½ per cent.
total.

Our next example is a large f
where as little timber as possible ha
used, costing about £50,000. On 6,0
ft. of timber the extra would be £1
on 57,000 sup. feet of glass £724.
£874, or not quite 1-6th of 1 per cent
low additional cost being due to the
amount of timber used, and as a res
building is practically fire-proof.
mates for small residences since th
show an increase of less than o per

Let us now examine the condition
to prevail after the war. In the first
owing to the terrible destruction
perty in Poland, Belgium, and F
immense quantities of iron, steel, c
bricks, timber, and glass will be re
to rebuild not only houses and bu
premises, but, most important
factories, because until trade is re
lished in these countries there wil
dreadful state of unemployment an
amongst the working classes. No
extraordinary demand is bound to
prices, and cause shortage of suppli
in order that we, as a nation, shoul
the greatest benefit, and also gi
greatest assistance to our Allies, we
be first prepared to deal with this de
and consequently our manufacturers
be encouraged to extend and rebuild
organise their factories before that d
becomes acute, or the consequence
that Germany will reap benefit
wrong-doing, because when peace
clared cost will still be the great fa
business, and not sentiment. It is
sary to keep the building trade goin
those persons who think that the
build more cheaply after the war
liable to a sad awakening. (See p
and 126.)

TIES AND INSTITUTIONS.

e Future of Reims Cathedral.

ssor F. M. Simpson, F.R.I.B.A.,
g at the Horniman Museum,
Hill, last week on "Reims
her French Cathedrals in the
g Line," described the damage
t Reims, the extent of which
strated by lantern slides, and said
stion was whether it could be made
He himself believed that it could,
ne of the indemnity which the Ger-
ould have to pay might well be ear-
for the purpose. Taking into
ration the great strength of the
g, he hoped that on further exami-
he stability of the piers, walls, and
would not be found to be affected,
surface of the stone to be alto-
ruined. He knew nothing, how-
what had taken place in the last
The damage done to the sculp-
s more serious, but the French had
culptors, and if they attempted
ion they would probably suceed;
other hand, they might decide to
e figures headless, as an example
nan "culture." The lecturer re-
that few Gothic cathedrals in the
ould have withstood such a shock
ntly.

Modes of Measurement.

ohn Watson, F.R.I.B.A., the presi-
moving the adoption of the report
uncil at the annual general meeting
Glasgow Institute of Architects,
vas held last week in the hall of the
ion of Engineers and Shipbuilders,
k Crescent, reviewed the operations
past year. He said that notwith-
g the war, which had severely
the private practices of individual
s, the work of the Institute had
tively carried on, and its aims and
steadily maintained. The various
tees had been kept busy, especially
ctice Committee, which had been
pon to co-operate with the various
tural societies in Scotland, the
of Surveyors of Scotland, and the
trade societies concerned, in the
tion of national modes of measure-
nd conditions of contract for build-
rk in Scotland. The mode of
ement for wright work, which had
en issued, was the first fruits of
oint labours. The meetings had
been held under the chairmanship
George R. Askwith, K.C. At the
nce, they might not quite like the
es, seeking as they did to eliminate
measurement" as far as possible.
ad been long accustomed to this
re, and considered it the best in the
y of cases. On the other hand, it
doubtedly desirable that they should
niformity of mode throughout Scot-
Their right to demand "after
ement" where advisable would
ll to be taken up in discussing con-
of contract. In future, contracts
into with the intention of having
r measurement would of necessity
to be more matured before being
ed with. On all the other points
iscussion, the architects had much
ratulate themselves upon, the prin-
pon which they laid stress having
cepted. There had been fewer
tions than formerly during the past
It was pleasing to note that the
of members in regard to conditions
ually been accepted with a result
had proved satisfactory alike to pro-
and competitors. In some cases
essity of framing proper conditions
of competition had induced promoters of small building schemes to place their work by direct commission and thus avoid competition—a procedure which had much to commend it. It was hoped that members would loyally support the council in their efforts in this direction. A committee had been formed to act in conjunction with the Architects' War Committee of the R.I.B.A., having as its object the providing of work for architects in necessitous circumstances. Fortunately, so far, the duties of the Local Committee had been practically nil. It was gratifying to know that within their province, architects, architects' assistants, and pupils, to the number of about sixty-seven, had responded to the nation's call for military and naval service.

A School of Decorative Painters.

Interesting observations on the decoration of buildings in colour were made by Mr. Halsey Ricardo, of London, lecturing to the members of the Birmingham Architectural Association, Mr. G. Salway Nicol presiding. Mr. Ricardo asked what would the average man of taste say if coming upon Trafalgar Square from Whitehall he found that during the night, and without any warning, Nelson's Column had been placed on a grass plot, that all the bronze plaques and the lions had been gilt, that the shaft of the column had been painted navy blue, the bronze capital wholly gilded, and Nelson himself and his clothes painted to resemble as closely as possible what the hero looked like just before the battle of Trafalgar. His first impression would be that an outrage had been committed. The ordinary man in the street, not knowing what to think, would condemn the horrid sacrilege as the simplest and safest way to view it. But to the wholly unsophisticated man there might be something said for this treatment—a treatment that would have been adopted in Babylon, in Egypt, in Greece, in Rome, in Byzantium, and in the Middle Ages. However, he preferred to consider what might be their opportunities for providing special colour decoration for the interior of buildings, and especially their public ones. How were they to find the substance on which to cut their wisdom teeth? He suggested that the class-rooms of the elementary schools formed a suitable field for an attempt at forming a school of decorative painters, but it was not proposed that the decorations should be permanent. The attempt should start with a simple scheme. He thought the heraldic treatment of colour was the right treatment to begin on, and the use of heraldic emblems helped to give a picturesque reinforcement to the study of history. Heraldry was a kind of history in shorthand. Various groups of men and women should be formed to undertake this elementary decorative work, and as the standard rose under such practice the more able decorators might be employed to decorate walls on an ascending scale of importance, such as workhouses, infirmaries, hospitals, waiting-rooms of stations. And when the quality of permanence had at last been earned and acquired, they might adorn the walls of public libaries, town halls, museums, and churches.

[Some observations on colour in decoration, more particularly with respect to its employment by the Greeks, will be found in our Editorial columns. Mr. Ricardo's suggestion that more should be made of the opportunities for colour decoration in the elementary schools will, we think, meet with general approval.—Eds. A. and B. J.]

OBITUARY.

Mr. T. G. Barker.

Mr. Thomas Groome Barker (of Messrs. Barker, Ellis, and Jones, architects), Manchester, died suddenly last week in his eighty-sixth year. Mr. Barker was, until last year, when he retired, an active member of the firm, but even after his retirement he took an interest in the work in hand, and came down to the office once or twice a week. All his life he had been a most devoted student of architecture—he was a pupil and afterwards a partner of the late Mr. Edward Walters, the architect of the Free Trade Hall. Mr. Barker assisted in making the drawings for the Free Trade Hall, Williams Deacon's Bank, Mosley Street, and many large warehouses and other buildings of that date for which Mr. Walters was architect, and in 1865 he and the late Mr. Ellis took over the practice. Among a long list of his works may be mentioned: The Manchester Grammar School (Langworthy Building), the old Stock Exchange (now pulled down), the Commercial Buildings, Cross Street, the "Manchester Guardian" Offices, Cross Street, the Union Assurance Buildings, Chapel Walks, Barton Union Offices, restoration of Flixton Church, the Deaf and Dumb Schools (Pendlebury wing), extensions to the Manchester and Liverpool District Bank and the Williams Deacon's Bank, and a number of houses and branch banks in Lancashire and the neighbourhood. He spent a considerable time in Italy, and travelled in France, Belgium, Germany, America, Spain, Greece, and Egypt, studying the architecture of all these countries, and he read copiously in his favourite subject right up to the time of his death.

Mr. McCarthy Fitt.

Mr. McCarthy Fitt, builder and contractor, of Carlisle House, Oxford Road, Reading, who has died in his 57th year, after only a week's illness, started in partnership with Mr. John Winter as a builder and contractor about twenty-eight years ago, but in the latter part of 1890 the partnership was dissolved, and Mr. McCarthy Fitt has since carried on the business on his own account. He has been responsible for many of the chief buildings erected in Reading for some years past, including the Art Gallery, the aged and infirm block at the Poor Law Institution, Redlands School, Central Boys' School (Katesgrove), Wokingham Road Infants' School, and the Reading Vaudeville, the premises of which he built and subsequently remodelled. He had also carried through much work for the Government. The new gymnasium at the R.M.C., Sandhurst, has only just been completed, and other schemes which he carried through were the Sonning sewerage, Basingstoke Isolation Hospital, Henley Town Hall, Crondall Infirmary, etc. Mr. McCarthy Fitt leaves a widow, two sons and a daughter, and the business will be carried on by the sons.

Alderman L. Price.

The death occurred at his residence, Hill Crest, Hartshill, Stoke-on-Trent, of Alderman Leonard Price, builder and contractor, who went to the Potteries from Ross, Herefordshire, fifty years ago. He had been connected with the municipal life of the Potteries for twenty years, first as a member of old Stoke Council and afterwards as a member of the Federated Council of the six Potteries towns. Alderman Price, who was seventy-one years of age, was a Justice of the Peace and a member of the Josiah Wedgwood Lodge of Freemasons.

NEWS ITEMS.

Illness of Mr. Ernest Newton.

We regretted to learn, last Wednesday, that Mr. Ernest Newton, A.R.A., President of the Royal Institute of British Architects, was confined to his house by a severe attack of influenza, and would be unable to deal with correspondence for the next ten days.

Building Trade "Unrest."

On March 6, at a general conference of trade unions connected with the London building industry, it was decided to make a request for an increase of 2d. per hour in wages. The claim is based upon the higher cost of living. All sections of the trade were represented.

New Assistant Architect for Scotland.

The architectural staff of the Local Government Board is to be increased by the appointment of an assistant architect in order to cope with the greatly extended work in connection with the development of Rosyth, the building of 3,000 houses there, and the town-planning scheme which has been submitted to the Board by the burgh of Dunfermline.

Newport Bridge.

The proposal to rebuild the old bridge over the Usk at Newport is again before the Newport Corporation. Off and on, this matter has been under consideration for about six years, and the committee in charge of arrangements have now decided to call in an expert to advise them on the best way to build the bridge, including the question of material.

Roman Sentry-Box Discovered at Dover.

In the course of the renovation by the Office of Works of the Roman Pharos near Dover Castle the removal of some stonework, probably erected during the last two or three centuries, has opened out a Roman sentry-box inside the ancient tower. These renovations have also been extended to the Colton Tower, one of the Norman defences of the Castle, and the removal of stonework has disclosed an entrance doorway to the tower and an oven where the troops in Norman days did their cooking.

Building in Cardiff.

The National Welsh Museum, Technical Institute, Fire Station, and the Co-operative Wholesale Society's new premises are all progressing at normal rate. The National Welsh Museum is now about 20 ft. above the ground, whilst the Technical Institute is almost roofed in; the new Fire Station (from Messrs. Harris and Moody's designs) is just rising above the ground, and the new premises for the Co-operative Wholesale Society are up to the second floor level.

War's Effects on Contracts.

The Wrexham Rural District Council's housing scheme for Rhos advanced another step last week, when approval was made to certain variations in the accepted contract. The contractor, Mr. J. Morgan, had written that, as much time had elapsed since the acceptance of his tender, he thought that, owing to the war, the Council should pay 10 per cent. more on the original contract price, 10 per cent. more on the schedule of prices, and agree to a few deviations in the specification. It was decided to accept the contractor's offer to carry on the work of erecting the twenty-two houses and the construction of the streets and sewers at a price of 10 per cent. above his original contract, and to allow the substitution of joists and doors of smaller diameter, glass of less weight to the square foot, and second-quality tiles in the sculleries.

New Memorial in St. Paul's Cathedral.

A memorial tablet to the late Admiral of the Fleet Sir Frederick Richards, unveiled in the crypt of St. Paul's Cathedral last week by Admiral Sir Gerard Noel, is a medallion of Carrara marble, in a frame of English alabaster, polished. The whole is surmounted by the Naval Crown, and the sculptor, Mr. F. W. Pomeroy, A.R.A., has introduced several naval emblems. Dean Inge, assisted by Canon Simpson, conducted the religious ceremony.

Government Timber Purchasing.

In the House of Commons last Wednesday, Mr. W. Young asked Mr. Beck, as representing the First Commissioner of Works, whether a new arrangement for the purchase of timber for the requirements of the War Office had now been considered or completed; and, if so, what were the terms and conditions of the new arrangement. Mr. Beck (Parliamentary Secretary to the Treasury) replied: "Yes, sir. The Commission payable will be as announced up to £600,000, and will be 1½ per cent. from that figure to £1,000,000."

A Vandyck for the National Gallery.

In Sir Charles Holroyd's annual report of the National Gallery we are informed that £10,000 was paid last year to Earl Brownlow for Sir Anthony Vandyck's portrait of a "Lady and Child," which came originally from the Balbi Palace, Genoa. The picture was exhibited at the British Institution in 1815 by Sir Abraham Hume, who had purchased it in Genoa. It passed by marriage to Lord Alfred, who lent it to the British Institution in 1838. It has been seen on many occasions since then, including the Vandyck exhibitions at Antwerp, 1899, and the Royal Academy, 1900.

New President of Scottish Society of Painters.

At a meeting of the Royal Scottish Society of Painters in Water Colours Mr. Edward Arthur Walton was elected president in succession to the late Sir Francis Powell. Born in 1860, Mr. Walton has distinguished himself alike as landscape and portrait painter. He was elected to the Scottish Academy in 1889, and in 1905 he was promoted to full membership. Pictures by him belong to the Scottish Modern Arts Association and to many public galleries.

Opening of Ganges Bridge.

On March 4 the Viceroy of India opened the great Sara Bridge, on the Ganges, in the presence of a large gathering, thus inaugurating direct railway passenger communication across the river. The bridge has been named after Lord Hardinge. It connects the lines of the Eastern Bengal Railway south of the River Ganges with those of the north, and is, apart from the Forth Bridge, the largest yet built by British engineers. The survey was begun in 1908, and the preliminary work was begun in the season 1909-10. The bridge, which has a total length of 5,900 ft., consists of fifteen main spans and six land spans. The total cost is £3,176,000.

Memorial to King Edward at Karachi.

The whole of the statuary for the Sind Memorial to King Edward at Karachi, upon which Mr. Hamo Thornycroft, R.A., has been engaged for the last three years, has now safely arrived in India. Its site is in the beautiful public gardens near the Frere Hall in that city, and it will form a pendant to that erected to Queen Victoria, which was unveiled by the King duri
visit to India as Prince of Wales in
The memorial consists of a colossal
statue of King Edward wearing
coronation robe. The statue is on a
marble pedestal, at the base of whic
subsidiary groups in bronze. The
will be completed and ready for unv
in about a month.

Trade Development.

In accordance with the practice for
Trade Commissioners in the British
governing Dominions to visit the
Kingdom officially from time to tin
that manufacturers and merchants
have the opportunity of consulting th
any matters connected with their bus
or of obtaining information as to the
bilities of extending their trade, it ha
arranged that the Trade Commission
Canada (Mr. C. Hamilton Wickes)
shortly pay an official visit to this co
Firms who may desire to have an inte
with Mr. H. Wickes are requested to
their applications as soon as pos
addressed to the Director, Commerci
telligence Branch of the Board of
73, Basinghall Street, E.C.

SPECIAL LEGAL REPO

Builder's Claim for Balance of Acc

Burton v. Riggs.

March 2. Official Referee's Court. Before Mr.

This was an action by the plaintif
William Alma Burton, a builder, ca
on business at Walham Grove, Fu
against Mrs. Riggs, a corset maker,
shops in various London suburbs, i
ing Hoxton, Camberwell, and Deptf
recover the balance of an accou
building and decorative repairs.
amount endorsed on the writ
£122 7s. 4d., of which £52 13s. 5d
been admitted, and for which judgme
obtained by the plaintiff, the def
being ordered by the High Court t
the question of the balance being s
the Referee for investigation. There
eighty-five items in the account, e
which had to be inquired into. In
of twenty-six of these the defendant a
overcharge, and as to others she a
defective workmanship. Particulars
delivered by order of the court, and
stated by plaintiff in reply that the
of the work had been done in a prop
workmanlike manner. The work
mainly at the shops at Deptford and
berwell, and the defendant stated th
of the overcharges of which she comp
was for district surveyor's fees,
she had herself paid. This the plain
the course of the hearing, express
willingness to deduct. The parties h
was said, been on friendly term
years, and in consequence of that
ship the plaintiff said his charges
"absurdly too small," the men's
alone having amounted to £55 13s.
while the materials had actually
£58 16s. 5½d. Taking all the out
into account, he had not, he said,
any profit for himself out of the
action, and there was no suggestion
workmanship until after the defenda
sued. The plaintiff further stated t
had a good deal of trouble with the
berwell shop, as it had been prev
used by a fried fish dealer, and the fi
which formed part of the counter
belonged to him (the former tenant
great deal of evidence was given o
sides, and in the result the Referee
judgment for the plaintiff for £27 5s
on the claim, and he also found for
tiff on the counter-claim with costs.

ARCHITECTS ON WAR SERVICE.

yal Institute of British Architects has compiled the accompanying record of members of the architectural profession who ined the various branches of the Imperial Forces for the purposes of the War. The list, which includes members of the Royal of British Architects, of its nineteen allied provincial Societies, of the Architectural Association, and of the Society of Architects, idents of the various Schools of Architecture recognised by the Royal Institute, contains some 1,200 names, and the number increased every day. We do not begrudge the large amount of space which we have allotted to this roll of honour. It is d not merely as a just tribute to those whose names appear in it, but also in the full assurance that it will be scanned with eager interest by every reader of this journal.

\. L.
H., R.A.M.C.
F. B., Wilts Regt. (Corporal).
L. K., 7th Bn. Liverpool Regt. (Lt.).
M. S. R., R.N.V.R.
W. A. Cole, Artists' Rifles.
W. Naseby, 1st W. Lancs, R.F.A. t.).
. A., R.E.
th, J. C., R.N.V.R., Anti-Aircraft.
James, London Scottish.
J. H., 14th Co. of London.
C. F., H.A.C.
er, G. L., Post Office Rifles.
er, W., Royal Scots.
. D., 4th Gordons.
. A., R.E.
. C., 12th Co. of London (Pte.).
T. F., R.N.V.R. Anti-Aircraft.
D., 15th Bn. H.L.I. (Major).
, P. M., 9th London Queen Victoria s.
, Stewart, A. and S. Highlanders.
H. D., H.A.C.
n, H. C., 3rd Home Counties Bde. (Lt.).
. P. H. E., R.A.M.C.
, A. S., West Kent Yeomanry.
I. E., 5th Seaforth Hrs. (Pte.).
A., 3rd Highland Bde. R.F.A. (Bombr.).
. E., 7th Bt. The Sherwood Foresters t.).
. W. S. S., 5th Bn. Wilts Regt. (Lt.).
. Owen, R.E. (T.) Devon Fortress Sec-
J. G., 4th Bn. Leicester Regt. (Capt.).
R. Alfred, R. Naval Div. (Engineers).
, Leslie, R.N.V.R. Anti-Aircraft.
George, 6th Manchester Terr. (Corpl.).
R. R., Royal E. Kent Yeomanry.
F. J., The Duke of Lancaster's Own.
Leonard, Liverpool Scottish (Pte.).
E. R., R.N.R. (Sub-Lieut.).
J. W., 5th Bn. K.O. Royal Lancs.
liff, A. M., 5th Leicester Regt. (Lieut.).
. A. R., 8th Bn. Q.R.W. Surrey Regt.
. R., 5th Bn. W. Surrey Regt.
. F., 7th Royal Fusiliers (Pte.).
., Hurle, East African Pioneer Coy. rs.).
nbe, H., Artists' Rifles.
. N., Public Schls. and Univ. Corps.
., 24th Co. of London (Pte.).
. H., 8th Bn. W. Yorks.
T. P., 1st (Reserve) Bt. Herefordshire
G., Artists' Rifles.
A. C., R.A.M.C.
., A. and S. Highlanders.
E. S. H., O.T.C.
., Leeds City Bn. (Pte.).
A., R.H.A.
t, John S.
ock, H., 12th Bn. Sherwood Foresters.
, H. L., 4th Bn. Loyal N. Lancs. (Lt.-
ld, R. W., 4th Bn. Leicester Regt. (T.) .).
C. N., S.W. Borderers (Lieut.).
H., Yorks Hussars (Trooper).
N. F., Royal Inniskilling Fus. (Lieut.).
n, L. A., W. Lancs R.G.A. (Lt.).
George, 5th Bn. R. W. Kent Regt. (T.).
Philip D., 5th Bn. R. Warwickshire (Lt.).
Thorold, 5th Bn. R. W. Kent Regt.
J. S., 1st Royal Scots (Edinburgh Bn.)).
W. T., R.E.
. S., Leeds City Bn
harles T.
H. G., Royal Engineers.
J. A
W., 5th Royal Welsh Fusiliers (Capt.)
H. P., R.E. (Capt.).
W. B., Sheffield Bn. Yorks and Lancs (Pte.).
. W., West Kent Yeomanry (Trooper).
Wm. B.
Alan, London Scottish.
rank S., 5th Bn. S. Lancs Regt. (T.) .).
. H., 9th C. of L. Batt. (T.).
Stanley, P. S. and U. Batt.
. E., O.T.C.
d, A. G., Artists' Rifles.
l, F., Queen's Own Hussars (Pte.).
redk., Black Watch.
l, R. C., Jersey Royal Militia (Lt.).
, C. J., Artists' Rifles (Capt.).
. M., 8th Manchester Regt. (Capt.).
M. L., Lancs R.E. (Lt.).
. W. B.

Bond, C. J., R.A.M.C. (Driver)
Bone, C B., 4th Bn. Devon Regt. (Capt.).
Bone, J. C., 9th Royal Scots (Pte.).
Bonser, K. J., Queen's 24th Bn. C. of L
Booth, G. B., O.T.C.
Boshier, G. E., Oxford and Bucks L.I. (Pte.).
Botting, M., R.E.
Bowden, E. E. Univ. and Public Schools Corps.
Bowen, R., Royal Glos. Hussars (Trooper).
Bowes, Roy, P. S. and U. Bn. Royal Fusiliers.
Bowie, G. P., 5th Bn. Canadian Exp. Force (Sergt.).
Bowhill, F. J., Naval Brigade.
Bowles, B. G., O.T.C.
Bowman, D., O.T.C.
Bowman, H., O.T.C.
Bownass, J. E., Princess Patricia's Canadian L.I.
Boyd, J. S., City of Glasgow Bn. H.L.I.
Brace, A. G., R.E.
Brady, A., 7th Bn. Royal Dublin Fusiliers.
Brewill, A. W., 7th Bn. The Sherwood Foresters (Lt.-Col.).
Bricknell, T. M., R.N.V.R.
Bright, T. L., Civil Service Rifles.
Brittan, H. W., 6th Bn. Worcester Regt. (Sec.-Lt.).
Broad, G. L.
Broad, Kenneth, Artists' Rifles.
Brodie, Robert, Glasgow Highlanders.
Brooks, C. J., 1st C. of L. Fusiliers (Lt.).
Brough J. Lindsay.
Brough. W. J., Artists' Rifles.
Brown, A. R.E.
Brown, E. H., 7th Bn. Notts and Derby Regt.
Brown, John, Northants Regt. (T.) (Capt.).
Brown, J. Boyce, 6th Bn. Hants Regt. (T.) (Lt.).
Brown, K. H., 4th Gordons.
Brown, Wm., Q.O.R. Glasgow Yeomanry (Q.M.S.)
Brown. W. J., R.E.
Brownrigg, A. H., Royal Marines (Lt.).
Bruce, D. P., Black Watch.
Brundle, H. Carleton, 12th Bn. Lancs Fusiliers.
Bryce, M. S., 14th Co. of London. (Bugler).
Buchanan, Alan, Glasgow Hussars.
Buckley, F. A., 11th Welsh Regt. (Capt.).
Bull, J. W., Artists' Rifles.
Bullock, G., 3rd Highland Bde. R.F.A.
Bulmer, F. H., R.A.M.C. (T.).
Bunce, H. E., R.E.
Burford, J. Artists' Rifles.
Burgess, G. D., East African Rifles.
Burgoyne, J. A., 2nd Monmouth Regt. (Pte.).
Burke, J. E., South Irish Horse. (Sergt.).
Burnett, A. S., 5th Hants Regt.
Burleigh, H., O.T.C.
Burnett, E., K.R.R.
Burnie, Thos. J., London Scottish.
Burnley, Tom, 2nd London R.A.M.C.
Burrows, E. R., R.N.R., H.M.S. "Hecate" (Sub-Lt.).
Burton, G. B., 6th Bn. King's L'pool Regt. (Pte.).
Burton, L., H.A.C
Bush, F. T., 29th Bn. Vancouver Regt. (Pte.).
Bushell, Thomas O.
Butler, A. S. G., H.A.C.
Butt, C. F., Artists' Rifles.
Butt, P., R.E.
Byrt, S. H., O.T.C.

Cabuche, H. L.
Callender, G. W., 15th Bn. Worcestershire Regt. (Sec.-Lt.).
Calvert, C. H., R.H.A.
Campbell, Duncan A., 10th Bn. L'pool Scottish (Capt.).
Campbell, J.
Caple, W. H. Dashwood, R.E. (Major).
Capon, G., 4th London Howitzer Bde. O.T.C.
Capper, S. H., Territorials.
Cappon, T. M., Black Watch (T.) (Recruiting Officer).
Carey, J.
Carder, W. J. T., 5th Devons (T.) (Capt.).
Carter, J., Northumberland Hussars I.Y.
Carswell, J. E., 9th Bn. H.L.I.
Cart de Lafontaine, P.
Carus-Wilson, C. D., 1st C. of L. Yeomanry.
Castleman, P. O., R.E.
Cave, Walter, R.N.V.R. Anti-Aircraft Corps (C.P.O.).
Cawkwell, Robert, Hallamshire Regt.
Cayley, C., Mon. Regt. (Lieut.).
Chadwick, J., Oxford and Bucks L.I. (Major).
Champion, H. D., Berks Yeomanry (Lce.-Cpl.).
Chappell, A. E. W., 24th Co. of London (Lce.-Cpl.).
Chandler, J. A., R.N.V.R. Anti-Aircraft Corps (C.P.O.).
Charlewood, G. E., Army Pay Dept. (Pte.).
Cheriton, W. G. L., Artists' Rifles.
Chetwood, H. J., Artists Rifles.
Chilton, E. A., R.A.M.C.

Ching, W. T., King Edward's Horse.
Chisholm, D. J., London Scottish.
Christie, J. F., 14th Co. of London (Driver).
Clark, F. W. R.A.M.C.
Clark, H. S., A.S.C. (Pte.).
Clark, G. G., Durham R.G.A. (Sec.-Lieut.).
Clark, James, 1st City of Glasgow H.L.I.
Clark, R. D., 7th Royal Fus.
Clark, W. L., Artists' Rifles.
Clarke, John M., Artists' Rifles.
Clarke, L. H., 5th West Yorks Regt.
Clarke, S., Chatfeild, Artists' Rifles (Major).
Clay, H. S. F., Army Service Corps (Lieut.).
Claydon, L., R.N.V.R., Anti-Aircraft Corps.
Clemes, Francis, Hertfordshire Yeomanry.
Clifton, E. N., Artists' Rifles.
Clouting, C. R.
Cockrill, O. H., Territorials (Capt.).
Cole, E. R. F., 3rd City Bn. King's Liverpool Regt. (Pte.).
Collin, B. P., Canadian Expeditionary Force.
Collings, T. H. O., Active Service, France.
Collins, O. H., Univ. and Public Schools Corps.
Colthurst, W. B., Somerset Regt.
Colquhoun, E. F. S., Monmouth Regt. (Capt.).
Constable, Wm. I.
Cook, J. O. jun., Territorials (Capt.).
Cooke, R. F., 5th Gloucesters (Lieut.).
Cooksey, H. T., 1st Res. Battery London Bde. R.F.A. (Gunner).
Cooksey, R. A., R.E. (Sec.-Lieut.).
Coombs, D. W., Territorials.
Cooper, A., R.E.
Cooper, C. M., 3rd Durham L.I. (Lieut.).
Cooper, W., 3rd Bn. Duke of Wellington's Regt. Lieut.-Col.).
Corbett, A. E., P. S. and U. Bn. Middlesex Regt. (Corpl.).
Corblet, C. J., R.N.V.R., Anti-Aircraft.
Corlette, H. C., King Edward's Horse (Major).
Cosser, G. A., 6th Bn. Hants Regt. (Sec.-Lieut.).
Cotton, P. P., R.N.V.R. (Sub.-Lieut.).
Coulson, R. C., 24th Bn. City of London Regt.
Cowdell, C. J. M., P. S. and U. Force.
Cowper, J. B. F., R.E.
Cox, N. W. T.
Craig, F. B., 11th Hants Regt. (Lieut.)
Craigie, J. H., 7th H.L.I. (Lieut.).
Cranfield, S. W., Middlesex Regt. (Capt.).
Crawford, C., Territorials.
Crickmay, G. H., R.E., (Lieut.).
Crofts, Christopher, O.T.C.
Crombie, Stuart F.
Crombie, W. F., 5th K.O.S.B. (Capt.).
Crome, J. S., 8th Essex (Cyclist Reserve) (Pte.).
Cromie, Robt., Staff, Royal Engineers (Lieut.).
Crook, W. W., 9th London Q.V. Rifles.
Crone, Harold C., R.E. (Sec.-Lieut.).
Crowe, J., 25th C. of L. Cyclist Bn. (Pte.)
Cruickshank, D. E., 1st Bn. P. S. and U. Royal Fusiliers.
Cruickshank, W. S., 4th Gordons.
Cubey, J. B., 23rd Bn. Northumberland Fusiliers (Ses.-Lieut.).
Cule, D. M., S. W. Borderers (Pte.).
Cundall, P. H., 3rd Bn. P. S. and U. Royal Fusiliers.
Cunliffe, T. H., 3rd Bn. Manchester Regt. (Lieut.-Col.).
Curd, P. J., R.N.V.R.
Curtis, S. Carey, R. Guernsey Engineers (Militia) (Capt.).
Curwen, John S., 3rd Bn. Loyal N. Lancs. Regt. (Lieut.).

Dalby, H. S., 1st Co. of London Yeomanry (Pte.).
Dale, Inns of Court O.T.C.
Danby, H. E., R.E.
Dane, H. E. R.E.
Dangerfield, B., 1st Bn. R. Naval Division.
Dangerfield, P., Artists' Rifles.
Davidge, H. E. J., R.E.
Davidson, Gerald, R.A.M.C.
Davidson, T. Gerard, Sportsman's Bn. Royal Fusiliers.
Davidson, J. M.
Davidson, Sam, 9th Royal Scots (Pte.).
Davies, A. H., 4th Welsh Bde. R.F.A. (Major).
Davies, Evan, R.E. (Sapper).
Davies, F. P. W., R.F.A. (Lieut.).
Davies, R. Cecil, R.E. (Major).
Davies, W. E., Artists' Rifles (Pte.).
Davies, W. J., R.N.V.R. Anti-Aircraft (C.P.O.).
Davis, Claud, 2nd Birmingham Bn. R. Warwicks (Lieut.).
Davis, H. S., R.E.
Davison, W. R., O.T.C.
Dawson, C. Ford, 4th Essex Regt. (Capt.).
Dawson, D. J. S., 1st Public Schools Bn. R. Fusiliers.
Dawson, W. F., Leeds City Bn. (Corpl.).
Day, N. F. C., Artists' Rifles.
Deas, Edwin H., Scottish Horse.
Dempster, John, R.E.
Detmold, F. G., Univ and Public Schools Corps.

Dewar, John N., Lochiel's Cameron Highlanders.
Dewar, Robt. J., 2nd Dragoons (Pte.).
Dick, R. Burns, Tynemouth R.G.A.
Dicken, Aldersey, Public Sch. and Univ. Bn.
Dicksee, H. J. H., Artists' Rifles.
Dickie, Archbd. C., O.T.C. (Sec.-Lieut.)
Dickinson, P. L., Dublin School of Instruction (Musketry Officer).
Diveri, A. B., 6th Gordons.
Dixon-Spain, J. E., R.F.A. (Special Reserve) (Lieut.).
Dobie, John B. P., 5th Royal Scots (Sec.-Lieut.).
Dobson, Walter E., Motor Ambulance (Driver).
Dod, H. A., 3rd Bn. King's Liverpool Regt.
Donaldson, B., Northumberland Hussars, I.Y.
Donnelley, C. O. C. C., Canadian Troops (Capt.).
Dossor, John M., 2nd Northumbrian R.F.A. (T.) (Capt.).
Douglas, J. W., Northumbrian Div. R.E. (T.) (Capt.).
Douglass, H. A., C. L. B. Bn. K.R.R. Corps (Capt.).
Dowdeswell, W., 5th Welsh Regiment (Capt.).
Dowsett, T. W., H.A.C. (Sergt.).
Dunbar, Morrison, Territorials.
Dunbar, Wm. C., Territorials.
Duncan, L., Highland Cyclists' Bn.
Duncan, T. V., 48th Highlanders, Canada.
Duncanson, E. Ford, Motor Boat Reserve.
Dunn, F. W. M., 5th Welsh Regiment. (Pte.).
Durnford, W. J., R.A.M.C. (T.).
Durston, C. C., H.A.C. (Lieut.).
Dury, A. B., Lond. Rifle Brigade.
Dyer, Frank, 6th W. Yorks Regt.

Eade, A., Univ. and Public Schools Corps.
Earle, F., Royal Engineers (Capt.).
Earle, L. M., 24th Co. of London (Pte.).
Eaton, Alex. R. C., 9th Bn. Bedfordshire Regt. (Sec.-Lieut.).
Eaton, G. M., O.T.C.
Edwards, Hewlett, R.N.V.R. Anti-Aircraft Corps.
Edwardes-Evans, J., P. S. and U. Bn. Roy. Fusiliers.
Eiloart, Ronald E., R.A.M.C. (T.).
Ellis, E. M., H.A.C.
Ellston, R. H.
Elsworth, L. A., Hon. Artillery Co.
Elsworth, Wm., Northants Yeomanry (Trooper).
Elwes, R. Gervase, Grenadier Guards (Pte.).
Emberton, J., Hon. Artillery Co. (Gunner)
Emery, Burkett J., 2nd Birmingham Bn. R. Warwicks.
Evans, A. F. F., 1st City Bn. King's Liverpool Regt. (Pte.).
Evans, G. L., 6th Bn. Essex Regt. (Capt.).
Eveleigh, G. T., 5th Bn. Somerset Light Infantry.

Fairtlough, Artists' Rifles (Lieut.).
Faraday, S., 4th Cheshire (T.).
Faulkner, H., R.E.
Fausset, S. S., 9th Bn. Liverpool Regt.
Fawckner, E. H., 3rd Bn. Monmouthshire Regt. (T) (Major).
Felkin, S. D., Artists' Rifles.
Ferguson, Jas., R.E.
Ferris, J. J., North Irish Horse.
Fildes, G. R. A., Artists' Rifles (Pte.).
Filkins, Edwin W., R.A.M.C. (Pte.).
Fincham, E., 7th Bn. Notts and Derbyshire Regt.
Fisher, H. N., O.T.C.
Fisher, J. W., 14th Bn. Northamptonshire Regt. (Major).
Fisher, K. J., 4th City Bn. King's Liverpool Regt.
Fisher, R. M., Scottish Horse.
Fisher, S. H., O.T.C.
Fleming, A. J.
Fletcher, G., Motor Cycle Despatch Rider.
Fletcher, H. Philips, 1st Co. of London Yeomanry (Major).
Flockton, C. B., W.R.D.R.E. (T), (Capt.).
Flower, Victor, 13th Bn. London Regt. (Capt.).
Floyd, F. H., 19th Bn. Royal Fusiliers (Corpl.).
Ford, James S., Royal Scots
Ford, P., Artists' Rifles.
Fordham, A., 5th Gloucesters (Pte.)
Forster, C. J., O.T.C
Fortescue, G. A., O.T.C.
Forwell, J. E., Forfar Highland Cyclists' Bn.
Forwell, E. S. W., Scottish Horse.
Foster, B., Public Schools Bn.
Foster, S. S., Sheffield Bn. York and Lancaster Regt. (Pte.).
Foster, Leonard, Leeds City Bn.
Fowler, E. G., N. Midland Div. A.S.C. (Capt.).
Fowler, R. H., 5th Bn. Lincoln Regt. (Capt.).
Frame, R., Glasgow Highlanders.
France, E. C., Artists' Rifles.
Francis, G. E., Royal Engineers (Pte.).
Frank, F. D., R.E.
Franklin, T. W., 11th Welsh Regt. (Pte.).
Fraser, Gilbert, 1st City Bn. King's Liverpool Regt. (Lieut.).
Fraser, J. L. H.
Frazer, L., 4th Hants Regt. (Capt.).
Freaker, Alan L., Artists' Rifles.
Froud, Denis C. M., Gloucestershire Regt. (Pte.).
Froud, Maynard, St. John Ambulance Brigade (Supt.).
Fry, P. G., 27th Division R.E. (Major).
Fyfe, Neilson, 4th Royal Scots (Colour-Sergt.).

Galletly, J. T., Lothian and Border Horse (Sergt.).
Gallie, Chas., R.H.A.
Galloway, J. B., 3rd Highland R.F.A.
Garrett, S. C., 1st Home Counties Field Co. R.E. (Lieut.).
Garbutt, Wilfred T., 6th W. Yorks Regt.
Gardner, W. H. R., Att. Indian Cavalry (Motor Despatch Rider).
Gaunt, O., R.F.A. (Lieut.).
Geddes, J. M.
Geater, R. M., East African Pioneer Coy. (Engineers).
Geeson, H. L., East African Rifles.
Gibbons, J. Harold, H.A.C.
Gibbs, H. B. S., Artists' Rifles.
Gibson, E. H., R.N.V.R.
Giles, E. M., East African Rifles.
Gill, H. P., 13th Bn. Sherwood Foresters.
Gillespie, J., Black Watch (Lieut.).
Glass, J. G. L., 14th Co. of London (Pte.).
Glazebrook, F. H., 5th Bn. King's Liverpool Regt. (Pte.).
Glover, A., London Scots
Glencross, L. H., Artists' Rifles.
Goddard, H. L. 4th Bn. Leicestershire Regt. (T.) (Major).
Godman, C. R. B., Roy. Sussex Regt. (T.) (Capt.).
Godwin, W. Hubert, 3rd Bn. Royal Warwickshire Regt.
Gold, H. A., 4th R. West Kent Regt.
Gold, Hugh, F. S. Bn., W. Kent Regt.
Goldsmith, G. H., 5th Lancs. Fusiliers.
Gomme, L. J., 11th C. of L. Bn.
Gonner, E. D. L., 10th (Scottish) Bn. King's Liverpool Regt. (Pte.).
Goodwin, A. Laurie, Lothian and Border Horse (Sergt.).
Goodacre, J. F. J.
Gordon, D. G., Univ. and Public Schools Corps.
Gordon, Joseph, R.E.
Gosling, J. H. C., 9th Hants Cycling Corps (T.) (Sergt.).
Gossling, H. F., Artists' Rifles.
Gostling, W. B.
Gotch, L. M., R.E.
Gottwalty, Phillip, S.W. Borderers (Lieut.).
Gough, R. I., 2nd Birmingham Bn. Royal Warwicks (Lieut.).
Graham, P. G., Northumberland Fusiliers (Sec.-Lieut.).
Grant, C., Army Service Corps.
Grant, F. T. W., R.E.
Grant, J. P. D.
Gray, Chas. S.
Gray, J. H., Anglo-Belgian Ambulance Corps.
Green, B. W., Middlesex Hussars.
Greenall, J. B., 9th Bn. Cheshire Regt, (Lieut.).
Grellier, Cecil, O.T.C.
Gresswell, H., Artists' Rifles.
Grice, W. S., Artists' Rifles.
Gray, G. W., 14th R.W. Fusiliers (Sec.-Lieut.).
Griffin, D. M., 18th Bn. Liverpool Regiment (Sergt.).
Griffith, G. R.
Griffiths, W., 5th Welsh Regt. (Pte.).
Ground, J. H., H.A.C.
Grote, A. L., Musketry Instructor (Lieut.).
Groves, F. N., Monmouth Regt. (Lieut.).
Guthrie, L. Rome, London Scottish.
Gutteridge, R. F., 5th Bn. Hants Regt. (Capt.).

Hack, M. S., Artists' Rifles (Q.M.S.).
Hadwen, Noel W., 3rd Bn. Duke of Wellington's Regt. (Sec.-Lieut.).
Hake, G. D. Gordon, King Edward's Horse.
Hale, Harry T., Sheffield Bn. York and Lancs. Regt. (Pte.).
Hall, A. E., 12th Hants. Regt. (Corpl.).
Hall, A. W., Artists' Rifles (Capt.).
Hall, G. L. Desmond, 13th London Bt. Princess Louise's Own (Sec.-Lieut.).
Hall, D. Carby, W.R. Divisional T. and S. A.S.C. (Capt.).
Hall, R. L. Carby, W.R. Divisional T. and S. A.S.C. (Capt.).
Hall, Stanley A., 25th Cyclists Bn. C. of L. Regt.
Hamilton, I. B. M., Gordon Highlanders (Lieut.).
Hammond, F. S., 11th C. of L. Bn. (Capt.).
Hampton, W. O., R.E.
Hands, J. G., Artists' Rifles.
Hardcastle, Wilfred J., Staff. 10th Division (Lt.-Col.).
Harding, A. Clifford, 1st Monmouth Regt. (Pte.).
Harding, Chas. Naval Volunteers.
Hardman, Adrian, O.T.C
Hare, J. T. V., 10th Middlesex Regt. (Sec.-Lieut.).
Harkess, W., R.N.V.R.
Harper, S. A., P. S. and U. Bn. Royal Fusiliers.
Harrington, C. A., 1st Canadian Grenadier Gds. (Pte.).
Harris, A. L., R.E.
Harris, F. L., London Field Ambulance.
Harris, L. T., Univ. and Public Schools Bn.
Harris, P. C., 3rd C. of L. Field Ambulance R.A.M.C. (Pte.).
Harris, W. H., 28th C. of London Regt.
Harrison, H. St. John, O.T.C.
Harrison, A. St. B., Artists' Rifles.
Harrison, W. H., E. Lancashire Terr.
Hart, G. W., R.E.
Hartman, C. Herbert, Artists' Rifles.
Harvey, Claud C., 9th Bn. H.L.I.
Haslam, J., Artists' Rifles (Sergt.).
Haslam, J., Uganda Volunteer Company.
Hasledene, C. W. F., 5th Lincolns (2nd Lieut.).
Hatchard-Smith, W. H., Artists' Rifles..
Hawker, T. F., Queen's Westminster Rifles.
Hayward, A. B., 3rd Bn. The Buffs.
Heathcote, C. H., Sherwood Foresters (Capt.).
Hebblethwaite, B. R., 2nd London San. Div. R.A.M.C.
Hedderwick, D. B., Westminster Dragoons (S.Q.M.S.).
Heiton, A. G., Black Watch (Capt.).
Helbronner, P. M., French Army.
Henderson, D. L., Cameron Highlander
Henderson, E. E. J., 2nd P.S. Bn. Ro liers (Pte.).
Henderson, H. E., British E. Africa Fi
Henderson, J. A., West Kent Yeoman
Hendry, H. D., Artists' Rifles
Hendry, W. J., Black Watch.
Henman, H. R., Engineer Unit. R.M.
Henshaw, Frederick, Terr, Force Depot
Heppell, F. H., 8th Bn. Worceste (Lce.-Cpl.).
Herford, Theodore, 1st Life Guards.
Heron, David, R.F.A. (Gunner).
Hett, A. J., R.E.
Hett, L. K., R.E.
Hewitt, A. K., 6th Bn. Norfolks (Cycli
Hibbert, Arnett, H.A.C.
Higgs, H. J., R.E. (Sapper).
Hill, D., 5th N.F. (T.) (Staff Capt.).
Hill, G. N., 1st City Bn. King's L'p (Pte.).
Hill, Joseph, H.A.C.
Hill, R. H. E., H.A.C.
Hill, R. M., 12th Northumberland F Lieut.).
Hill, Wilfred, D.C.L.I.
Hillyer, W. H., R.E. (2nd Lieut.).
Hinderer, C. M. B., East African Pione
Hinton, C. A., 5th K.O. Roy. Lancaster
Hipkins, F. W., Sheffield Bn. York and ter Regt. (Pte.).
Hitch, J. O. B., Artists' Rifles.
Hitchings, A. C., 2nd B'gham B Warwicks.
Hitchcock, Cyril W., Monmouth Regt.
Hodges, J. S., 6th Bn. Royal Fusiliers
Holbrook, A. L., 7th Bn. Notts and Der
Holder, T. G., 1st B'gham Bn. Roy. W
Holland, P. M., A.S.C.
Holman-Hunt, H. L., Burma P.W.D. Vo
Holmes, B. Scott, C.L.B. Bn. K.R. (2nd Lieut.).
Holroyd, F., R.A.M.C. (Pte.).
Holt, G. H. G., 2nd London Scots.
Home, G. W., Artists' Rifles (Pte.).
Hooper, Arnold F., 5th Bn. R.W. Ke (Lieut.).
Hooper, C. Owen, Hants Carabineer Y
Horsfield, J. Nixon, R.N.V.R.
Horsley, R.C., London Irish.
Horsnell, A. G., Artists' Rifles.
Hosking, T. S., R.E.
Hossack, W. B., Lowland Engineers (2n
Hough, T. B. D., 8th Bn. E. Yorks Re
Hoult, J. W., R.N.V.R. Anti-Aircraft.
Howcroft, G. B., 7th Bn. West Ridi (2nd Lieut.).
Howard, P. G. M., Glam. Fortress R.E
Howitt, T. C., 9th Leicesters (Lieut.).
Howse, R. J.
Hubback, A. B., 19th Bn. London Regt
Hubbard, Harry, 9th Bn. H.L.I.
Hudson, E. R., R.E.
Hughes, B., 2nd London Sanitary Co.
Humphrey, G. A., Mech. Transport
Hunt, Norman S., Univ. and Public Corps.
Hunter, Arthur, Scottish Horse
Hunter, G., Northumberland Fus. (Ca
Hunter, M., 4th Bn. Notts and Der (Lt.-Col.).
Hutton, A. J. S.
Hutton, G., Scottish Horse.

Impey, L., 7th Roy. Fus.
Ingleton, D. F., Glamorgan Yeomanr
Inglis, L. Stewart, R.F.A. (Capt.).

Jackson, C. E., Uganda Volunteer Co
Jackson, John, Black Watch (Corpl
Jackson, B. de C., H.A.C.
Jackson, S. S., East African Carr (Lieut.).
Jackson, T. Gordon, R.N.V.R. Anti-A
Jacob, J. H., H.A.C.
James, Angus, A.S.C. (Pte.).
James, A. G., 4th Northants Regt. (2
James, C. H., 5th Gloster Regt.
Jaques, T. A., Artists' Rifles.
Jardine, H. S., London Scottish.
Jay, H., R.E.
Jeffrey, C. A., 4th Devon Regt.
Jeffrey, H. M., R.E.
Jelley, F. R., R.A.M.C. (T).
Jenkins, F., 1st West Lancs R.A.M.C.
Jennings, C. H., Sheffield Bn. York a Regt. (Pte.).
Jessop, Bernard, 8th Bn. Yorks Regt.
Jezzard, R. G., 4th Highland Moun R.G.A.
Johnson, F. L., 8th Bn. Argyll and S Hrs. (Pte.).
Johnson, W. H., Royal Engineers (Te Officer).
Johnson, V. I., East African Rifles.
Johnston, J. V., R.E.
Jones, A. C.
Jones, A. L., O.T.C.
Jones, C. F., R.N.V.R. Anti-Aircraft.
Jones, G. Howard, P.S. Bn. Roy. Fus
Jones, O. Campbell, H.A.C.
Jones, R. S., Artists' Rifles.
Jones, W. H., R.E. (Sapper).
Jones, David, Yeomanry (Trooper).
Jones, L. F.
Jones, Treharne H., 11th Welsh Regt.
Jones, W. Orlando, P.S. and U. Bn. liers.
Joynson, L. C. B., 6th Bn. Roy. S. St (Lieut.).

(To be continued.)

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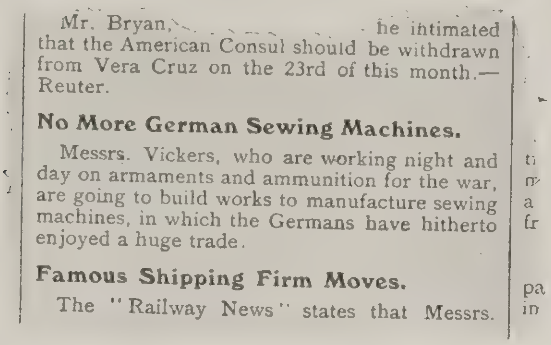
TAKE TIME BY THE FORELOCK AND REMEMBER THAT THE RACE IS TO THE SWIFT.



Mr. Bryan, ... he intimated that the American Consul should be withdrawn from Vera Cruz on the 23rd of this month.—Reuter.

No More German Sewing Machines.

Messrs. Vickers, who are working night and day on armaments and ammunition for the war, are going to build works to manufacture sewing machines, in which the Germans have hitherto enjoyed a huge trade.

Famous Shipping Firm Moves.

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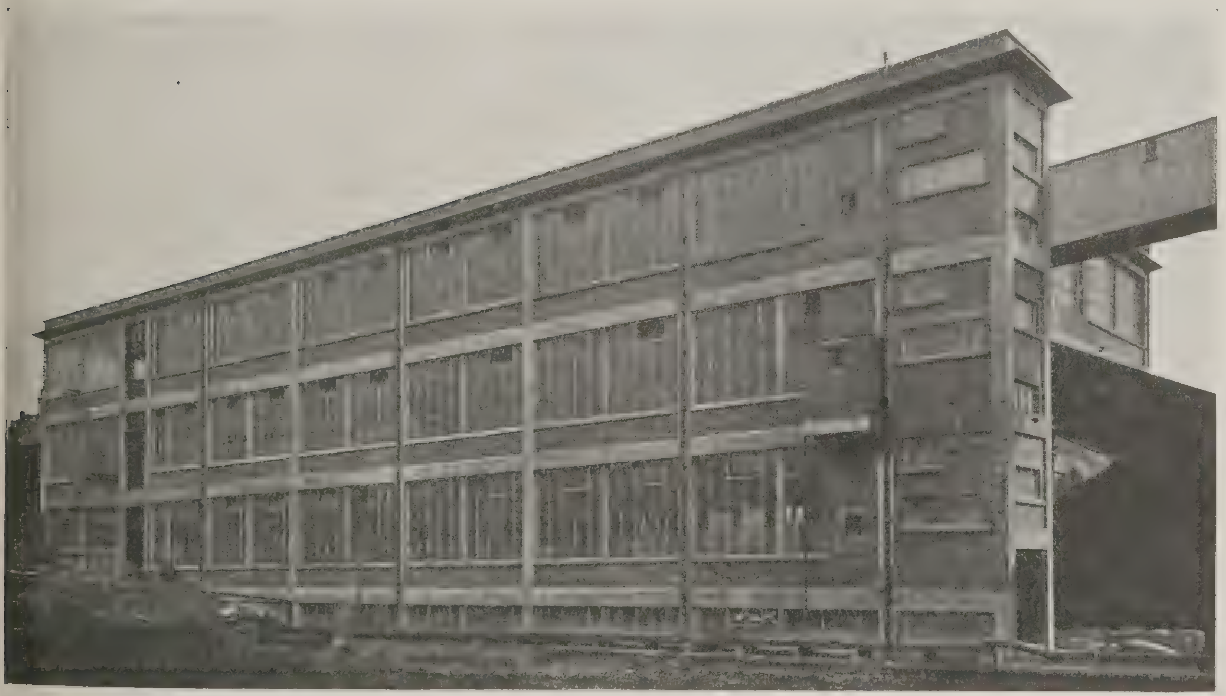

A Kahn System Factory.

THE TRUSSED CONCRETE STEEL CO., LTD.,
52, CAXTON HOUSE, WESTMINSTER, S.W.

COMPETITIONS.

University of Western Australia.

Designs are invited for the laying out of the University grounds at Crawley, Perth, Western Australia, and premiums of 100 guineas and 25 guineas respectively will be given for designs placed first and second in order of merit.

Drawings Required.—Plans are to be drawn on the contour map issued with the conditions of competition, and the outlines of the more important buildings, gardens, and principal constructional features should be indicated thereon, in so far as they illustrate the general design. Two sections must be supplied to the same horizontal scale as the contour map. The vertical scale and line of sections to be at the discretion of the competitor. No elevations or perspective drawings to be submitted.

Requirements.—The special consideration of designers must be given to the allocation of appropriate areas, suitably situated, and embracing sites for the following:—Central Group of Buildings, including—Great hall and suitable annexes, library, administrative offices (six rooms at present), refectory, and students' common rooms for men and women respectively, lavatories, janitor's quarters. (These buildings should be capable of extension.) Faculty of Arts Group—The present requirements are about twelve rooms. (These buildings should be capable of extension to double this size.) Conservatorium of Music—Not required at present, but should be provided for and be placed at a considerable distance from other buildings. Science Departments, including—Chemistry, Physics, Biology, Geology. These are housed in separate buildings of at least ten rooms each, and should each be capable of considerable expansion. The individual departments are best built in the form of E, H, T, or some similar shape, so as to allow of easy extension, and also to facilitate lighting. Biology may be near the water, or a separate aquarium provided for. Mining and Engineering Department -Shaped also H, L, T, or E, etc., and capable of much expansion. Agricultural Department—Small at present but capable of expansion, and with room for trial plots, experimental garden, etc. Veterinary Science Department—Small at present but capable of expansion, with considerable space for animals; preferably well away from the other departments. Might conveniently be placed on flat southern end. Medical School—Not required at present but should be provided for, with ample room for numerous sub-departments such as bacteriology, tropical medicine, affiliated public hospital, etc. Colleges—Provision for three or four colleges, women's college with women's tennis court, and possibly small hockey ground. Residences -Provision for, say, six professors' residences; provision for, say, six attendants' cottages. Grounds—University Oval for cricket, football, etc., with grand stand, etc. Tennis (plenty of room to allow of, say, ten courts). If possible, also a small practice ground for cricket, etc. Boat shed on river (also women's boat shed), aquarium, gardens, etc.

The competition is to be assessed by a board appointed by the University in which is included the Chief Government Architect of Western Australia. Drawings must reach the Registrar, University of Western Australia, Perth, not later than May 31, 1915. Documents relating to the competition may be seen at the offices of the Agent-General for Western Australia, Savoy House, Strand, London.

Asylum, Gartlock.

The Glasgow Parish Council have decided to invite competitive plans for additional buildings at Gartlock Asylum to accommodate 300 patients.

Bromborough Estate, Cheshire.

Architects in practice are invited by Messrs. Lever Brothers, Ltd., to submit designs for (1) groups of five cottages, to cost not more than £1,000 per group, and (2) groups of seven, to cost not more than £1,400. A rather novel method of premiating is to be adopted. Nine premiums in all are offered, and each premium will be at the rate of 2½ per cent. upon the competitor's estimate of the cost of his design for a group, which is not to exceed the amounts named. Mr. Geoffrey Lucas, F.R.I.B.A., has been appointed assessor, and conditions of the competition will be forwarded on application to "The Architect," Messrs. Lever Brothers, Ltd., Port Sunlight, Cheshire.

PROJECTED NEW WORKS.

Housing Scheme, Darfield.

The Darfield (Yorks) Urban Council propose to borrow £15,425 to provide houses for the working classes. An enquiry has been held.

Baths, Newcastle.

A Local Government Board enquiry has been held into the application of the Newcastle City Corporation for permission to borrow £29,700 for the provision of baths at Heaton, Benwell, and Walker.

Extension, Greenock.

The Greenock and District Combination Hospital Board have under consideration the proposed extension to Gateside Hospital at an estimated cost of £1,800 in order to provide additional accommodation for nurses.

Bridge, Blaina, Glam.

An enquiry has been held into the application by the Nantyglo and Blaina Council for sanction to borrow £3,748 for the erection of a bridge in Cwmcelyn Road, Blaina, and street improvements at Blaina.

Sanatorium, Milford.

The Surrey County Council have authorised the Public Health Committee to proceed with their preliminary enquiries and preparation of plans and estimates for a sanatorium and hospital on the Sattenham Estate, Milford.

Thirty Houses, Prudhoe.

A Local Government Board enquiry has been held into the application by the Prudhoe (Northumberland) Urban District Council for power to borrow £6,000 for the erection of thirty houses at Edgewell.

Municipal Buildings, Doncaster.

Doncaster Town Council have passed provisional plans for proposed new municipal buildings and for a new isolation hospital. In each case the estimate of the expenditure for building work is about £20,000.

The New Medical School at Cardiff.

Full authority, it is understood, has been given to proceed with the building of the new medical school at Cardiff. The plans prepared by Colonel Bruce Vaughan, the architect for the building, have been approved, and the erection of the physiological block, the contract for which has been already signed as between Sir William James Thomas, the donor of £90,000, and the contractors,
Turner and Co., will be begun i
ately.

Houses, Carlisle.

Carlisle Health Committee ha
proved a scheme for the erection o
houses in Bowsteads, Grassing
twenty-four in Willow Holme at
cost, including street improveme
£9,582.

Town Planning, York.

The Local Government Boa
decided to comply with the applic
the York Council for authority to
a town planning scheme in respect
acres, situated partly within the
partly within the rural districts of
and Flaxton.

Additions, Netley.

The Executive Committee of th
War Hospital at Netley have de
add 100 beds to the existing acco
tion. The additional buildings, by
Edwin Hall and E. Stanley Ha
architects of the hospital, will be
at once.

Town Hall, Marylebone.

On a site purchased by the Ma
Borough Council some two year
new town hall is shortly to be bui
Huddersfield Corporation have
the Council a loan of £30,000 on n
paying interest at the rate of 3¾ p
repayable in thirty years, for the

Bridge, Goring.

The Thames Conservancy have
the revised plan for the new bridg
the Thames from Goring to Strea
is proposed that the bridge shall
ferred to the Oxford and Berks
Councils, which will be entitled t
all tolls.

Re-erection, London, W.

The London County Council h
sented to the re-erection of Nos. 2
Regent Street, and No. 16, Gre
Street, W., on the application
C. T. Armstrong, subject to the
that the building be commence
six months and completed within
months from March 1 last.

Housing, Hartlepool.

An important housing scheme a
pool has been the subject of
Government Board enquiry. A l
in the heart of the town is to
lished, and new houses erected,
cost of £25,000. For the prese
ever, it is intended to build on
four new houses at a cost of fron
£250 each.

Plans Passed, Aberdeen

The Plans Committee of the
Town Council has passed the pla
following new buildings: Alter
connection with underground roo
Court House Buildings for the C
Municipal Buildings Commissio
Messrs. Kelly and Nicol, architec
ing-house, Fraser Road, for
Gordon and Co., Ltd., timber m
per Mr. John Rust, architect;
house in connection with Oakba
trial School, for the Governor, pe
Jenkins and Marr, architects; fo
ing-houses, Ashley Gardens, for
thern Gardens Suburbs, Ltd., pe
D. and J. R. M'Millan, archite
tions and alterations to premises
Street, for Mr. Robert Gordon,
case manufacturer, per Messrs. B
Watt, architects; addition
Works, Berryden Road, for the
Comb Works Co., Ltd., per Mr
S. Boice, engineer.

TRADE AND CRAFT.

A "Prufit" Waterproofing Booklet.

ceptionally neat booklet, issued by Messrs. Rogers,
nd Co., Ltd., 26, Page Street, Westminster, gives full
rs of "Prufit" (Ceresit Brand), which is manufactured
rm under license of H.M. Board of Trade to work the
patent for Ceresit. "Prufit" is a paste, which is
to 1 with water, and to this mixture 11 more parts of
added. The mixing of sufficient Prufit and water for
batch of sand and cement is done in three or four
This Prufit water is then used instead of ordinary
nd the vendors claim that it is impossible for the
to get the waterproofing agent mixed otherwise than
lute uniformity throughout the whole mass of cement.
as the waterproofing agent can be evenly distributed,
inimum quantity need be used. No excess is required
for errors or difficulties in mixing, and a considerable
cost of material as well as labour is effected. It is
nous, imparts no smell to cement work, does not im-
colour of cement, and prevents sweating, efflorescence,
oid growths.
ries of useful "Notes and Suggestions for using Prufit,"
e given at the end of the booklet, various services to
material is applicable are enumerated, small illustra-
he margin elucidating the points in the text. Cement
in-pipes, and sewer-pipes, made with suitable materials
it water, are rendered absolutely watertight. All walls
s and basements, Prufit rendered 5/8 in. thick, are
ept completely dry, immensely increasing the value of
und rooms for storage.
endering is recommended as giving an economical
corridors, class-rooms, and all places subjected to
r; as making a durable sanitary floor, free from rising
r damp-coursing, drain-joints, flushings and gutters,
walls, pits, and garages, etc.; for sea-walls and break-
nks, and reservoirs, roof-gardens and flats, and for all
of bricks and stone. It makes the concrete work easy
ecuring sharp arrises, and a good surface without hair-

"Concrete for Military Huts."

eference to the article bearing this title on p. 57 of the
or February 3, we are in receipt of later information to
that the attitude of the War Office towards concrete
ion is now by no means unfavourable. The specific
which reference was made in the article was derived
authentic source, and we are therefore the more glad
qual publicity to the gratifying fact that H.M. War
ve ordered, through their agents, several dozens of the
" machines, complete with accessories and pallets for
facture of partition slabs to be used for the erection
thousands of military huts. It may be useful to add
address of the (U.K.) Winget Concrete Machine Co.,
tar Buildings, Newcastle-on-Tyne.

Messrs. George Wragge, Ltd.

th astonishment we learn that Messrs. George Wragge,
well-known art craftsmen, of Wardry Works, Salford,
er, and Clock House, Arundel Street, London, have
necessary to make the emphatic disclaimer which
n our advertisement pages. It having come to their
e that false and slanderous statements (obviously made
urpose of injuring their business) have been uttered to
that they are a German firm, they give notice that legal
gs will be taken against any person making, repeating,
ating such statements, which are entirely without
n. None of Messrs. George Wragge's directors or
lers are Germans, no part of their capital is owned or
l by Germans, and, in short, the business is wholly

Pudlo Waterproofing.

informed that the walls of the police station at Wor-
hich were frequently damp, have been completely cured
lering of Pudloed cement; also that in the large blocks
ngs now in course of erection for the new sanatorium
ngham, the powder Pudlo has been included in the
ion.
requent reports received, there is a growing tendency to
roofs in concrete. Many of these are, we notice, made
t with a rendering of Pudlo and cement. A large flat
t Blackpool (Shaw's Depository) was finished about
ths ago, and we understand that both contractor and
consider the Pudloed treatment a great success.

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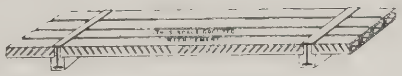

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Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

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ARCHITECT and Surveyor's Assistant in provinces desires post; student R.I.B.A.; age 22; good draughtsman and colorist, sketch, working, and detail drawings, surveying, etc.; specimen drawings; excellent references; London or provincial.—Box 9187.

ARCHITECT'S Assistant; 20; good draughtsman, knowledge of measuring, setting out; tracing, also levelling; very efficient typist; near London preferably; salary 25s.; excellent references.—Box 9193.

ASSISTANT (age 28) seeks permanent situation; used to assisting principal of builder and decorator's business; estimating and supervision; energetic and reliable.—5, Devonshire-road, Merton.

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BRICKWORK and Pointing wanted (piecework) by rod or job; references.—G. P., 53, Blenheim Road, Blackhorse Road, Walthamstow. 9196

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ESTIMATOR and Chief Clerk requires situation; experienced in all branches of trade; at liberty this week; excellent references; London or provinces; moderate salary.—C. B., 34, St. James' Road, Watford, Herts.

THE Association of Builders' Foremen and Clerks of Works, 56, Old Bailey, E.C.—Experienced Foremen and Clerks of Works can be obtained by applying to the Secretary, Mr. J. W. Sawyer, 214, Clapham Road, S.W. Competent foremen and clerks of works are invited to join this Association. 8289

YOUNG Architect (24), recently discharged from R. E., now desires berth as architect's assistant or estate steward, in good office; last engagement in a county office; 8 years' experience, excellent draughtsman and designer, details, quantities, working drawings, perspectives, surveying, etc.; excellent testimonials.—M. Cox, Architect, Highbridge, Somerset.

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CLERKS and Foremen of Building Works are required in the Canterbury Royal Engineer Division; candidates should have a knowledge of building construction and be able to measure work on a schedule; a Clerk and Draftsman is also wanted.—Apply to the Division Officer, R.E., the Barracks, Canterbury. 9194

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than £1,000 per group, and of seven
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selected Designs, to be divided betw
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the cost of his design for a group, whi
not be over either of the foregoing am

The premiated designs will become
perty of the Promoters, who reserve t
to erect the groups, by their own staff
singly or in repetition, or not, as the
fit.

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WAY), WOODGRANGE PARK GOOD
NEAR EAST HAM.

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ing 400 tons of sleepers, 6 tons of oa
60 tons fir planking, and 46 tons log
now stacked as above, which will b
by AUCTION by
MESSRS. ROBINS & HINE,
of 5, Waterloo Place, London, S.W., o
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Catalogues may be had of the
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J. R. ROBERTSON, Esq., Sectional E
Fenchurch Street Station, E.C.; at
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and CUTTING AWAY and MAKING
CONNECTION with same and certain
ING WORK at the ENFIELD HOUSE,

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and copies of specification, condition
tract, and forms on which Tenders
made can be obtained on applicatio
Architect, J. C. S. MUMMERY, Esq., 13,
Square, W.

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fore NINE o'clock on the 24th MAR
endorsed "Tender for Hot-water Servi
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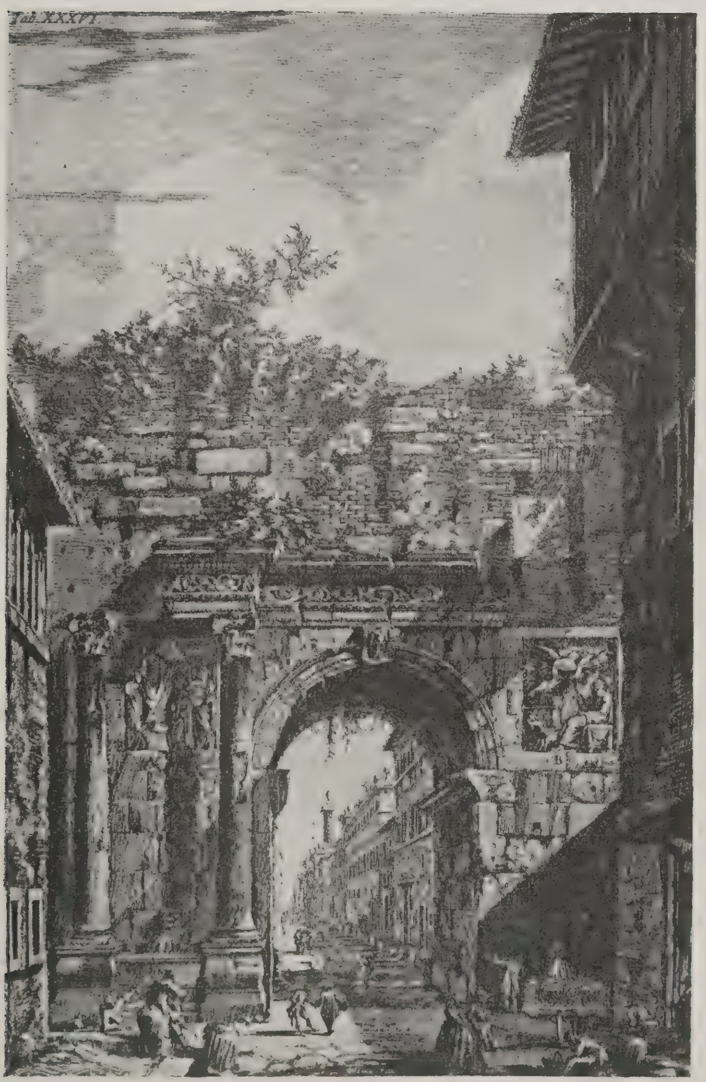
THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 24, 1915. Volume XLI. No. 1055.

No. 128.



(From Piranesi.)

THE ARCHITECTS' &
BUILDERS' JOURNAL.

MARCH 24, 1915. TOTHILL STREET, WESTMINSTER. VOLUME 41. No. 1

EDITORIAL.

BY the death, on March 14, of Commendatore Walter Crane, R.W.S., Britain loses a fine figure of a man, and an artist of strong individuality and far-reaching influence. He came perilously near the fate of that artist who, "halting between high tragedy and low comedy, achieved the namby-pamby"; for he seems to have attempted a blend of pre-Rahpaelitism, classicism, and the mode of the Japanese colour-prints, and in his technique there was always a reminiscence of the knowledge of craftsmanship he acquired during his apprenticeship to W. J. Linton, the wood-engraver. To the last his designs always had the appearance of being drawn on the wood. His first Academy painting, exhibited in 1862, foreshadowed very clearly by its very title, "The Lady of Shalott," and still more definitely by its treatment, the ideals that he never forsook. He was always in quest of beauty, and that which he found in life never satisfied him; he must needs translate it into the terms of his ideals.

* * * *

When, during the "'seventies," he came under the influence of William Morris, these ideals were confirmed and developed rather than changed, and, with the help of a certain marked but wholly harmless capacity for posing, he thenceforward lived in a sort of Earthly Paradise imagined by Morris and peopled and depicted by himself—a paradise summarised in brief by his beautiful if inept little frontispiece to Morris's "Dream of John Ball," bearing the legend, "When Adam delved and Eve span, who was then the gentleman?" Adam and Eve are rather demonstratively Greek, and therefore just escape the charge of mere prettiness, although both are quite obviously posing for Mr. Walter Crane as the only true begetters of the arts and crafts movement, Eve having no more real business with her spinning than Adam has with his delving; but no one can say that the picture is without charm. It shows a characteristically fine decorative quality, supports the declaration that Crane never in his life drew an ugly line nor placed a figure badly, and it is a fair example of the relief he gave us from the harsh ugliness of the workaday world. That he was no realist, but sought rather to idealise everything, yet not beyond either recognition or realisation, is to his praise, though many have blamed him for it.

* * * *

Crane, for all his idealising, never soared out of sight of practicality; and one may well believe it was on principle and of set purpose, thinking that his own love of beauty might be shared, in some measure at least, by all who saw its manifestations, that he drew things as they might be rather than things as they are. His attitude towards art and nature may be expressed by Whistler's reply to the lady who rashly said that the Butterfly's pictures were becoming like Nature—"Yes, madam; Nature is creeping up." Crane honestly
believed that Nature would creep up. It wa
faith that he worked so strenuously and with
self-sacrifice for the elevation of art-crafts
acting for three years from 1893 as Dir
Design for the Manchester Municipal Schoo
and in 1898-9 as Principal of the Royal Scho
at South Kensington; for this, too, that he
much energy into the Arts and Crafts move
which he was always the leading and t
picturesque figure; for this that he lectured a
untiringly; and for this that he gave ungrudg
his substance and his skill, drawing cartoons,
banners, illustrating books, for no more su
reward than the gratification of knowing that
wanted and appreciated all that he could give

* * * *

It was as a book decorator (for he illustrate
decoratively, even in his early toy-books for
that he did his most vital work, and he did it u
influence of Morris's conception of a book-p
perfect unity of type, pictures, decoration, and
and his example in this direction has been ha
potent than that of Morris himself. As it i
through books that the public receives such a
tion as it is capable of imbibing, Crane's wo
without a certain reflex action on architecture
enormous calls upon him for black-and-whit
greatly restricted his actual decoration of
and is an excuse for the apparent feeblene
colour schemes. What little plaster-work
showed such boldness and vigour in the model
leave no doubt of his mastery of this
Remembering his modelled ceiling and fir
Coombe Bank, Sevenoaks; his friezes at Cla
East Sheen, and Paddockhurst; his "Passing
at the West London Ethical Society's Ch
panels at the Women's Christian Temperan
ing in Chicago; his frieze for the galleries of t
Art Section of the St. Louis Exhibition; and
getting that at the Paris Exhibition of 190
awarded a gold medal for mural tile desig
half sorry that he did not confine himself to th
tion of interiors. But his life-work, sociolog
artistic, is so rich a legacy that it were as u
as vain to regret that his noble mind and his
and fertile talent were not diverted to other is

* * * *

Undeterred by one or two early failures,
still persist in their efforts to get rid of
names to streets. A rather half-hearte
on Berlin Road has been unsuccessful;
Local Government Records and Museums C
of the L.C.C. profess their inability to
a sufficient case has been made out by t
Newington Borough Council for altering W
Road to Beatty Road. Surely, even if the

wallowed in hatred of us, there would have
son enough to get rid of such an ugly name as
den, if only because the average Londoner has
least notion how it should be pronounced. It
that many similar proposals are being
by the Council. Presumably these refer to
rbs, where the speculative builder is con-
ly anxious that the labels of his roads shall be
and comforting. His frequent selection
ame of some German holiday or health resort
miliar by picture posters at the railway stations
requent references in the "fashionable intelli-
of the halfpenny papers was dictated by the
rdly wisdom that is now leading to repudiation
reminiscences of the land of the Hun.
y such names attracted by their flattering
ion that Suburbia was easily familiar with such
f the wealthy, and liked to be insistently
of them; now they have become repugnant
ns that while equally sentimental, are more
derstood and condoned.

* * * *

observations have but little relevancy to
proper, where the comparatively few street-
f German origin were usually adopted as
memorials. For this reason, but more
rly because the names have become acclima-
because by their alteration important streets
se a substantially valuable identity, we are not
kely to hear of any great clamour for the
ion of any of the numerous reminders of
. Shakespeare having been appropriated by
ans, we need have no conscientious scruples
nexing Hanover; nor would we lightly part
er Cobourg or Coburg—both spellings are
different London streets; nor with Bunsen,
me and character smack more of Scandi-
an of Teutonic origin. Blenheim we would
up in the absence of stronger reasons for
g it than those which we think that earlier
upplies us for retaining it. Dantzic and
we could spare without a pang, although it
likely that anybody will require the sacrifice;
rds Vienna Road we are coldly indifferent—
erhaps, because the Austrians seem so much
ous than their allies to incur the odium of
ess.

* * * *

ell that the London County Council has
over the naming of streets within its jurisdic-
the whole, it has exercised this power with
n and common sense. Its own adventures
ming of streets have been, as a rule, rather
when it invented or rediscovered the names
and Aldwych, and when it gave to streets in
of Drury Lane the names of famous actors.
it was responsible for bestowing the names of
s in Dickens on streets about the old
a we are not quite sure, but, at any rate, we
pplaud Dorritt Street and execrate Quilp
ut commemorative street names are always
g, whether they refer to fiction or to fact. One
now that Artillery Row and Newington Butts
back to the days when these places were
with the twang of the good yew bow and
of the clothyard shaft. Cannon Street,
is without military significance. It is simply
ion or degeneration of Candlewick Street,
comes down to the deadly utilitarian signifi-
its near neighbours, Bread Street, Wood
ilk Street, Cloth Street, and the rest, not
Pudding Lane. For bald significance, the
ould be hard to beat, with its courts, named,
, Brick, Pump, Fountain, Elm, and Figtree,
per Buildings. One suspects that so stringent
y of the imagination has its rebound in other

One practical point about street-labelling that ought to receive immediate attention as soon as the present desolating lighting restrictions are removed is their proper illumination at night. A stranger groping about (perhaps in bad weather) in the suburbs for the street he wants is in pitiful plight. True, in many instances the street-name is placed on the fence or dwarf wall of the forecourt of the first house; but even then the wanderer by night must strike a match before he can decipher it. Where the label is high up, this expedient will not serve him, and, failing the courage to knock at the door and inquire of the inmates, he needs must ask a policeman, who regards him with the air of one who is more intent on diagnosing insobriety than imparting information. No one fulfilling a peaceful errand in the suburbs ought to be subjected to these humiliating shifts. All street-names should be sufficiently illuminated, either by attaching them to lamp-standards or by affixing to each its own special lamp, in the manner of the station names on some of our more enlightened railways.

* * * *

In his recently published book on "Town Planning, with Special Reference to the Birmingham Schemes," Mr. George Cadbury, jun., notes a curiously characteristic instance of the blundering miscalculations and purblind megalomania of the Germans. Their town planners have insisted on such wide thoroughfares in all directions, that not only has an enormous cost been entailed in construction, but the roads have absorbed such a large percentage of the ground that the landowner has been compelled to extract from what is left a return sufficient to cover all the expense to which he has been put. Evidently German shortsightedness is more than literal and physical; or, alternatively, if they did foresee this inevitable consequence of their grandiose schemes, we get here yet another example of what Coleridge called "the nimiety or too-muchness of the Germans." In this country our leading town-planners have consistently deprecated such extravagant waste of space, and, in some instances, have even gone too far in the opposite direction.

* * * *

Too great a width of street not only offends the sense of propriety and proportion; it complicates the traffic and confuses the pedestrian. It is in the broader streets that most of the accidents happen, not mainly because, being arterial, they are much frequented, but mainly because they are broad, giving extraordinary facilities for the multifarious vehicles to collide, and multiplying in proportion to its width the risks of the foot-passenger. It is painful to read, in a Home Office return issued last Wednesday, that last year 637 fatal street accidents occurred within the Metropolitan Police district, and nineteen in the City; while the non-fatal accidents in the larger area reached the prodigious total of 25,239, with 1,253 in the City. These appalling figures, which show a considerable increase on the returns for the preceding year, may not, at the moment, greatly impress a public that is only too familiar with casualties. Nor can it be expected that the Government, in present circumstances, is in a position to give the matter the immediate and close attention that might be reasonably demanded in normal times. Nevertheless, the evil is so serious that, sooner or later, it must be dealt with very drastically, for it is monstrous that in one year more than six hundred lives should be sacrificed and more than twenty-six thousand people injured in the streets of London. Unfortunately, the three or four remedies in sight—more stringent police control, severer punishment for reckless driving, and the provision of more street subways—are all more or less ineffectual; but a less preoccupied public will clamour for their adoption, and the matter is one to which the Road Board should be urged to give its most earnest attention.

HERE AND THERE.

By way of corollary to Fluellen's Celtic averment—there is a river in Monmouth and there is a river in Macedon, look you—I may say there is a Roman Vitruvius and there is an Indian Vitruvius. The Roman variety has long been familiar to us, but the Indian Vitruvius is practically unknown. A new book on Indian architecture, however, just published by Mr. John Murray, reveals him to us, and it is worth while to give some account of his counsel to the building craftsmen of India. He appears upon the scene by way of protest against the Western régime which has set up expensive renderings of a bad phase of English classical architecture from Lahore to Madras. According to Mr. Havell, the real India is no other than a succession of villages, and in the way of modern architecture in India we shall never do any good until we realise that the master-builder of that land rejoices in a living tradition, and can do excellently well when left to himself. To give point to his argument the author leads us into the mystic ways of the Indian village plans, and it is in the evolution of these that we come upon the Indian Vitruvius—the Mânasâra Silpa-sâstra. Everybody has been so persistently on the wrong track, according to Mr. Havell—Fergusson's analysis, for example, is entirely rejected, and Sir George Birdwood, "who for thirty years kept the conscience of the India Office in artistic matters," is scouted for affirming that Fergusson had fixed "past all gainsaying" the classification of Indian styles of architecture—that I venture timorously on the present excursion. Still, the glimpse one gains of the Indian Vitruvius is worth the risk.

* * * *

Let me begin, then, by quoting from our author that the Silpa-sâstras were possibly compiled about the fifth or sixth century A.D., but the traditions they embody are of far greater antiquity. The Mânasâra Silpa-sâstra insists upon the high intellectual and moral culture necessary for a master-builder. "He should be conversant with all the sciences; always attentive to his work; of an unblemished character; generous, sincere, and devoid of enmity or jealousy"—a clause that would look well on page 1 of the Form of Contract. The master-builder's right-hand man is his surveyor, *sûtragrahi*, who must be particularly skilled in mathematics and obedient to his master. And next in order of precedence is the joiner, *vurdhaci*, who is required to be "of a calm disposition, and acquainted with drawing and perspective."

* * * *

With master and men thus excellently equipped, good building for the village could be assured, and the work might be brought to completion without bickerings, aspersions, or solicitors' letters—if there were such things in ancient or mediæval India. The Mânasâra gives practical hints for determining the suitability of the soil; it is to be tested by colour, smell, taste, appearance, and feel; and having passed successfully this strange quintology of investigation, it is ordained to be ploughed over by a pair of oxen, strong and without blemish; the master-builder himself, garlanded and dressed in clean garments, turning the first furrow, and subsequently retaining the oxen and the plough as his perquisite in the matter. (I like to think of the present-day contractor retaining the sub-contractor's plant as the modern equivalent to this grand old Indian custom!) The lay-out of the village and the erection of its houses then goes on merrily. Before proceeding to note some of the local by-laws and regulations, mention must be made of the remarkable similarity that exists between the plans of these Indian villages and the modern "gridiron" plan of the cities
of the United States. The Mânasâra gives eigh
dard types of plan, to suit differing requiremen
religions, and the symmetrical character of th
astonishing. All art in ancient India was held
magic, and thus it happens that the lay-out of the
villages followed the plan of the cosmic cross a
so-called magic square, but the reader must n
understand this association of mysticism w
practical business and common sense of the
workman, good evidence of which is seen in the
tation of the principal streets in order that they
be purified by the sun's rays, while the intersec
shorter streets running north and south prov
perfect circulation of air and the utmost benefi
cool breezes.

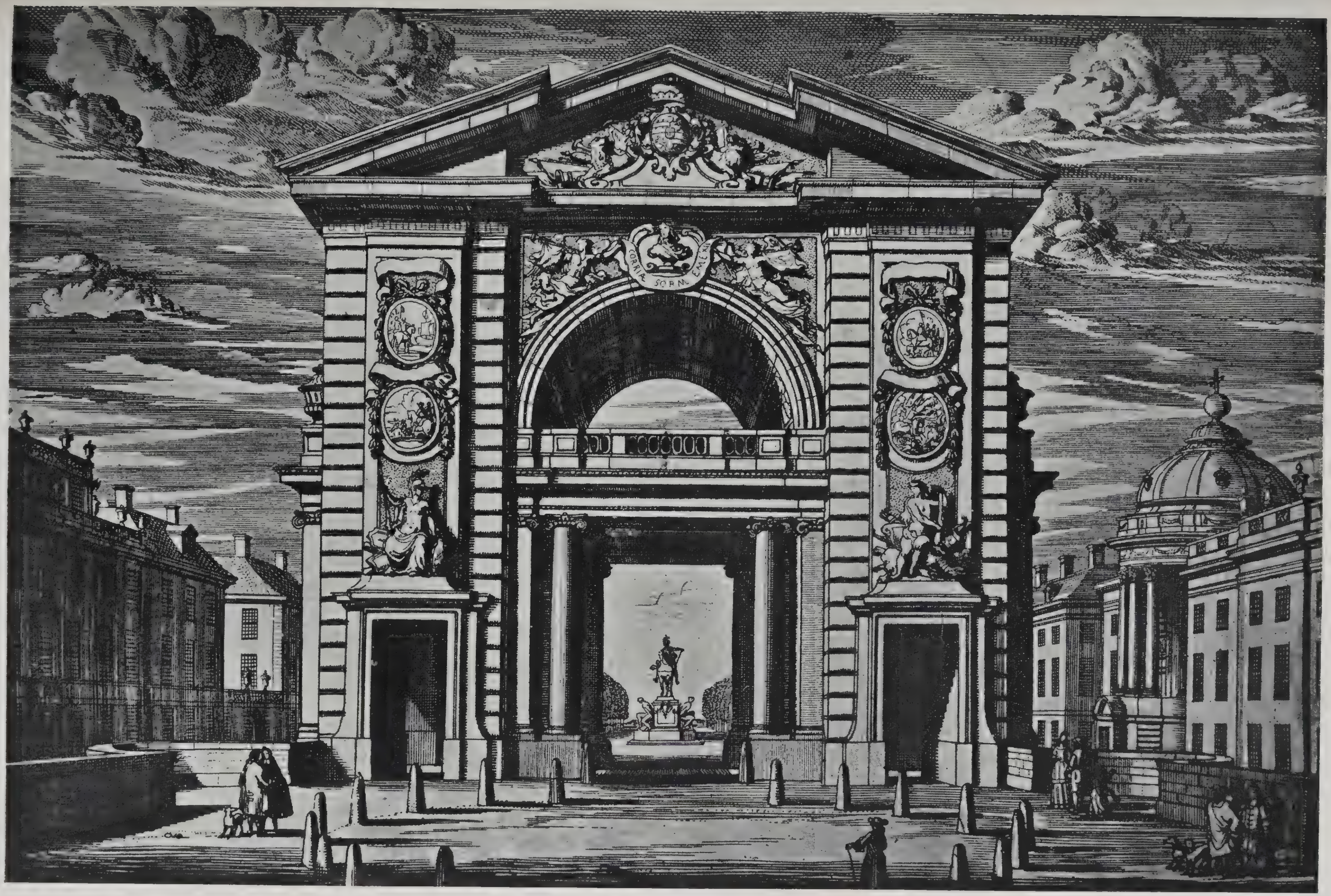
* * * *

The Mânasâra gives the maximum width of th
village streets as 5 *dandas*, equivalent to 40
others varying in width from 1 to 5 *dandas;*
of houses being reckoned as from 24 ft. by 1
40 ft. by 32 ft. Private houses may comprise fr
to nine storeys, but this is to be determined by t
of the person for whom they are built; "the
classes must never construct their houses of mo
a single storey"—a regulation which would cau
an uproar if applied, say, to a garden suburb
"best" portions of our own towns. Note, a
following regulation, so sadly abused in Regent
"As far as practicable the height of building
same street should correspond: buildings of th
number of storeys corresponding in heigh
having no first-hand knowledge of India, th
stipulation is unintelligible to me, and on t
of it looks rather like a breakfast-table p
"The front, middle, and back doors of a hous
be on the same level, and in a straight line w
other." And our Western sense of the symm
upset by the statement that "the outer door sh
placed not exactly in the middle of the façad
little to one side. The usual rule is that in a h
paces in length, the entrance should be betw
on the right and four on the left. The sa
should be observed in the gates of temples
author does not deal with the Mânasâra *in ext*
sufficient has been said to show that it reall
Indian Vitruvius, and for his own peace of mi
the foe descends upon him with barbs of cri
hope Mr. Lutyens has a copy of the work.

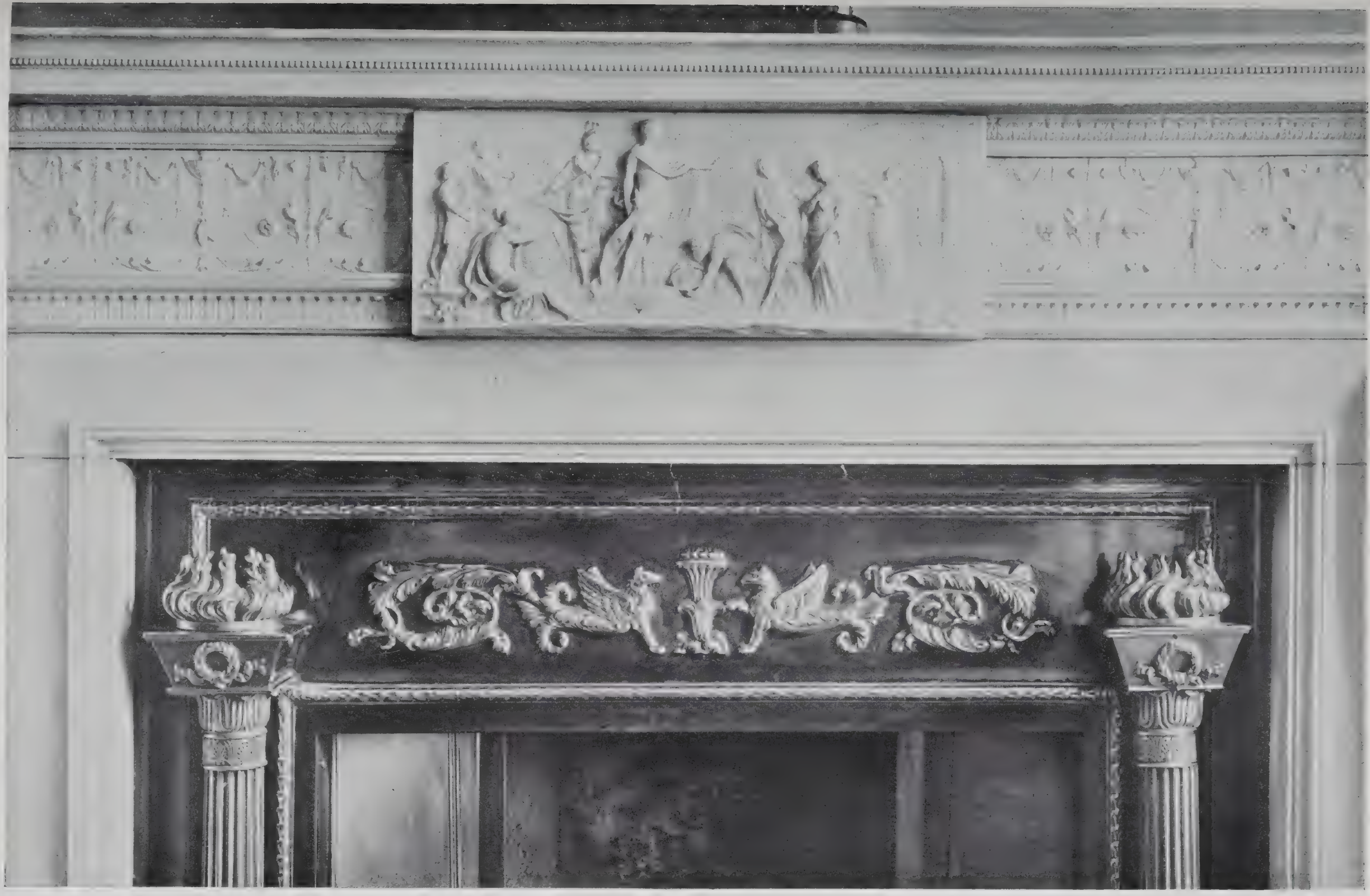
* * * *

From the wonderful way in which the
Reims stood the shock of the first bombard
learnt how solid was the work of the old
though the German shells have since been falli
Reims in such numbers that nothing could pos
expected to remain intact. And now comes
"Eye-Witness" at the front to pay further t
the solidity of the old walls. William of Mal
describing the manner of building in the
century, speaks of "the courses of stone
correctly laid that the joint deceives the eye, a
it to imagine that the whole wall is compo
single block"; which thorough manner of bui
doubt was copied in some of the old buildin
"Eye-Witness" refers to. "The astonishing
of many of the old mediæval buildings in this
he says, "such as the Templars' Tower at
and the church tower of Messines, is evinced by
that they have resisted bombardment by
artillery. The latter is, of course, in a mor
ruinous condition, as a result of the German
ment four months ago; great blocks of maso
been blown off it; the belfry has been shot a
interior is completely burnt out; but the fra
though irregular in outline, and full of gapi
still stands defiant amid the surrounding ruin

U

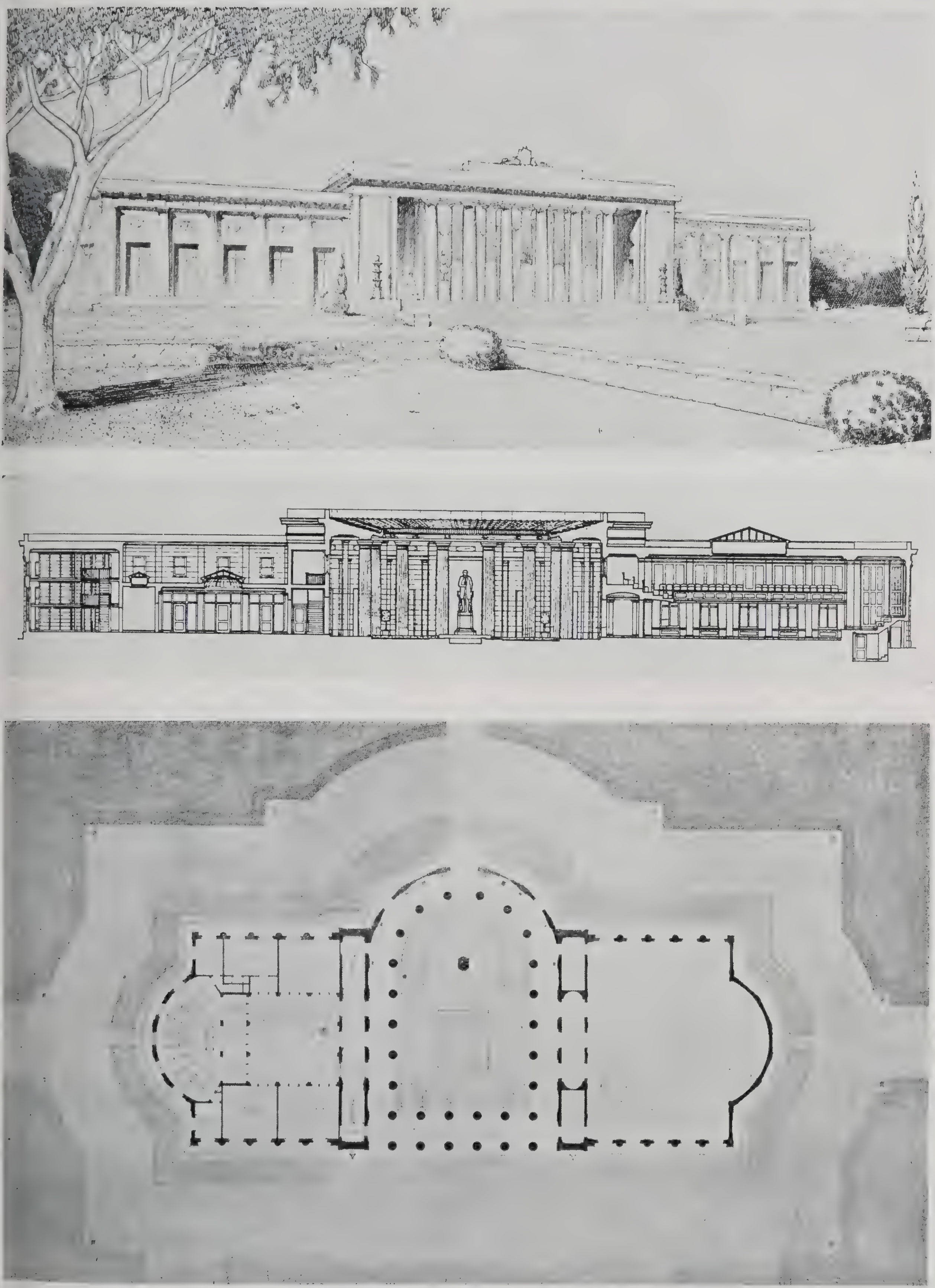


DESIGNS BY DANIEL MAROT. II.—TRIUMPHAL ARCH.



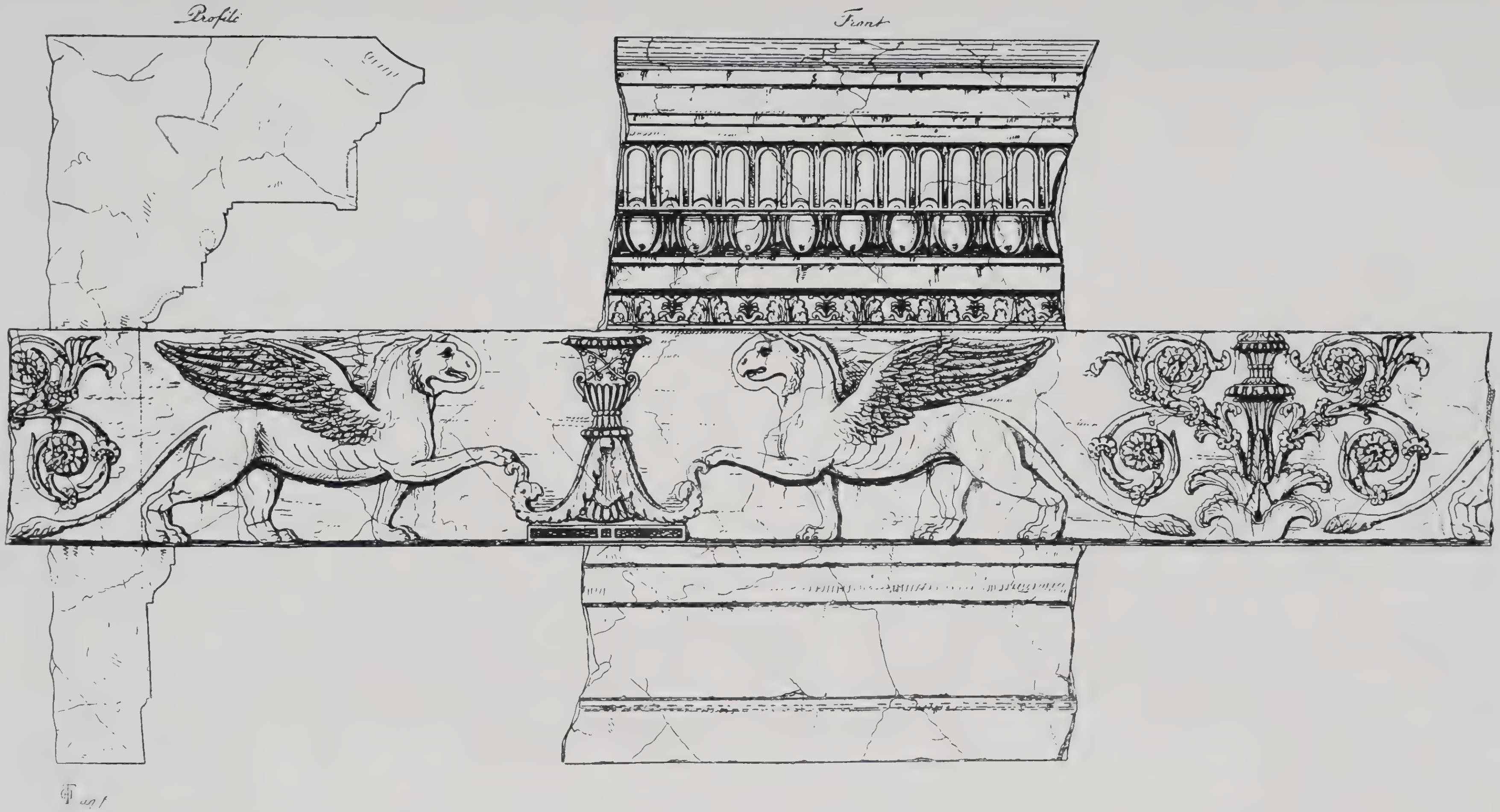
DETAILS OF CRAFTSMANSHIP. XI.—MANTELPIECE IN SALOON, BOODLE'S CLUB, LONDON.

ROBERT ADAM, ARCHITECT.

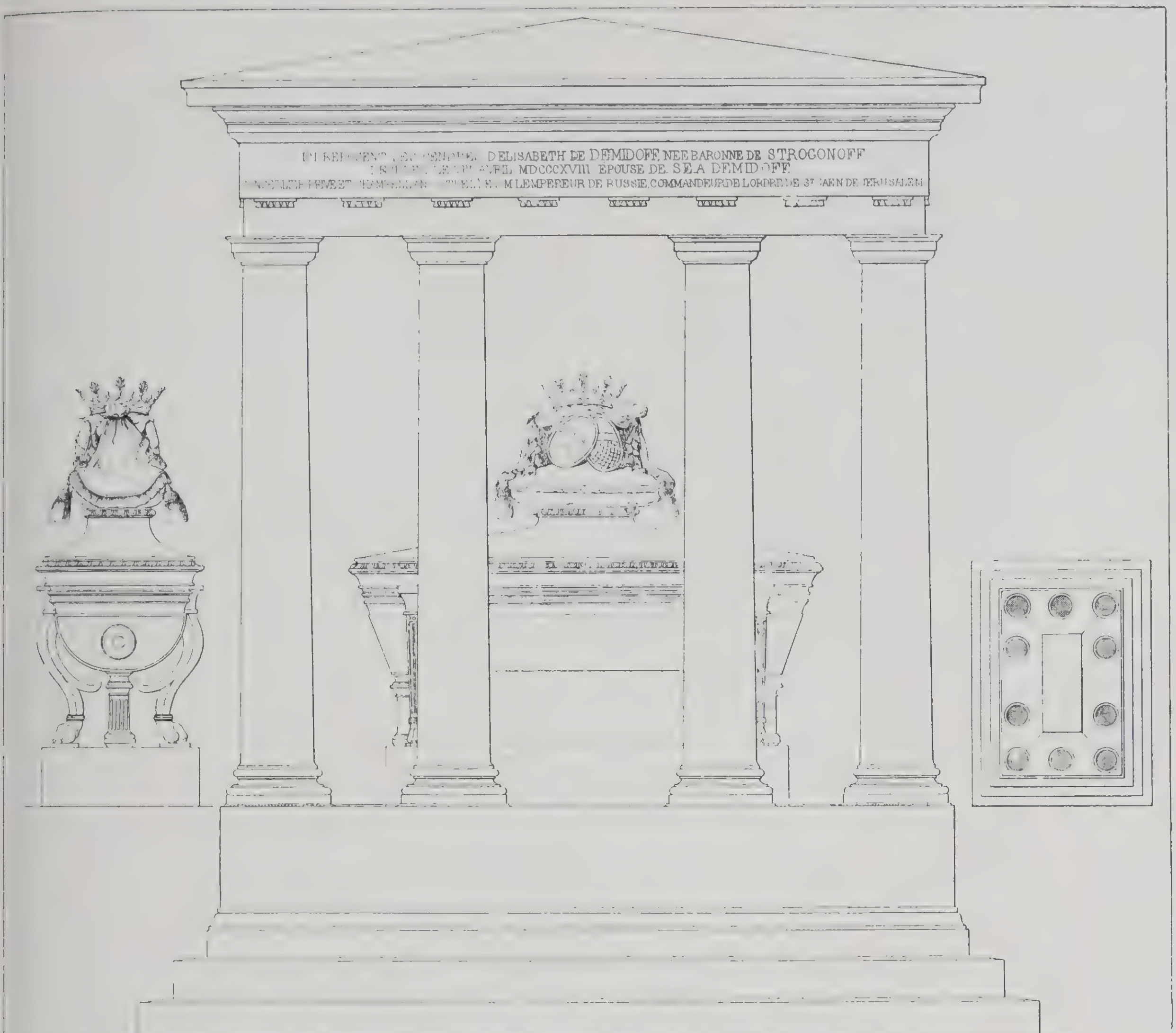


MODERN AMERICAN ARCHITECTURE (SERIES II.). XVI.—McKINLEY BIRTHPLACE MEMORIAL AT NILES, OHIO: SELECTED DESIGN.

McKIM, MEAD AND WHITE, ARCHITECTS.



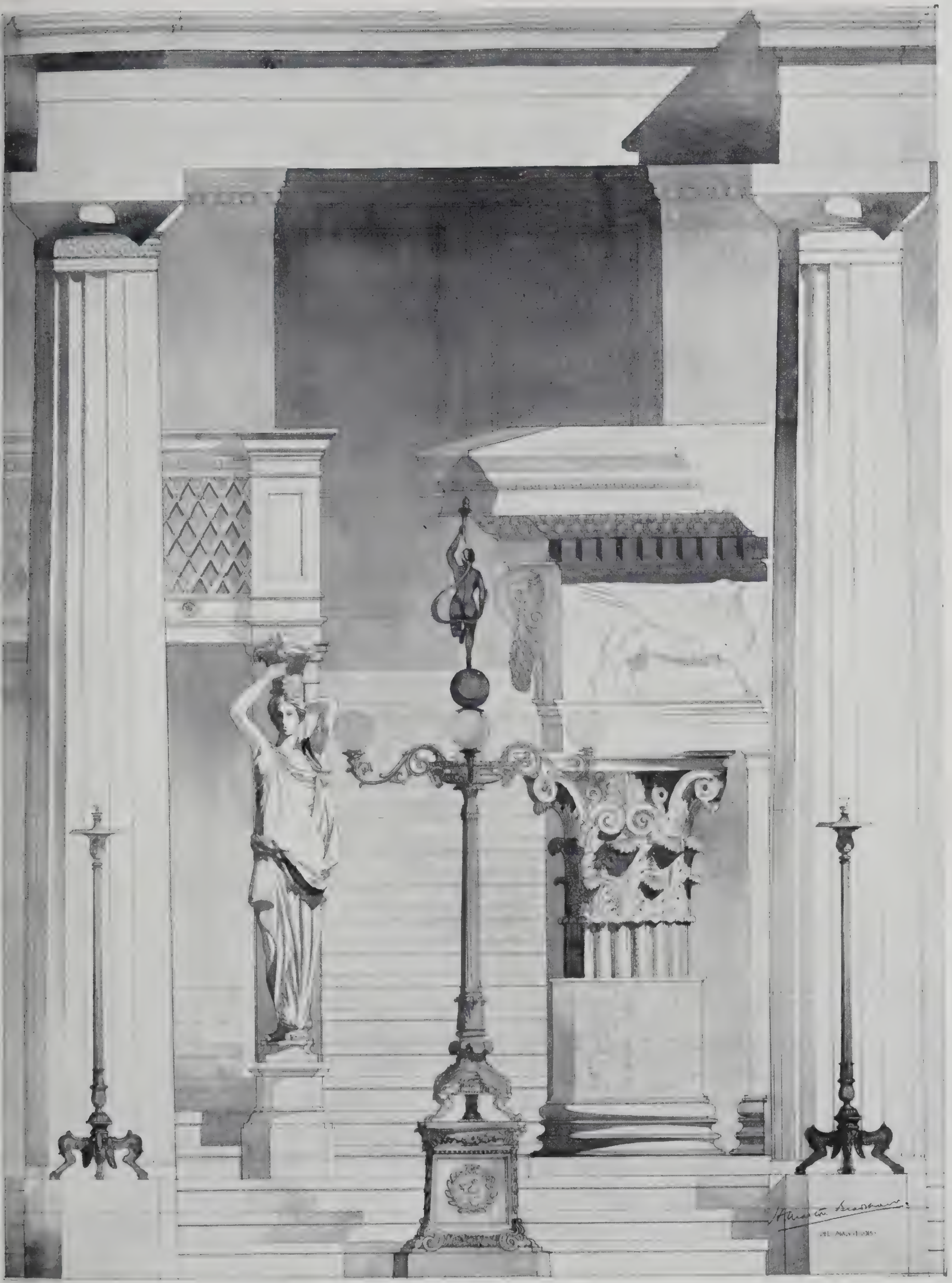
DRAWINGS OF ROMAN ORNAMENT. VI.—ENTABLATURE FROM TEMPLE OF ANTONINUS AND FAUSTINA, ROME.


DELISABETH DE DEMIDOFF NEE BARONNE DE STROGONOFF
MDCCCXVIII EPOUSE DE S.E.A DEMIDOFF
M L'EMPEREUR DE RUSSIE, COMMANDEUR DE L'ORDRE DE St JEAN DE JERUSALEM
Echelle de
PLAN DU CAVEAU
A
B
C
D
COUPE
sur la ligne CD
COUPE
sur la ligne AB

FRENCH MONUMENTS. IX. DEMIDOFF MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.

JAUNET, ARCHITECT.

[illegible]
[illegible]
[illegible]



STUDENTS' DRAWINGS. XLI.—COMPOSITION FROM ST. GEORGE'S HALL, LIVERPOOL.

BY H. CHALTON BRADSHAW.

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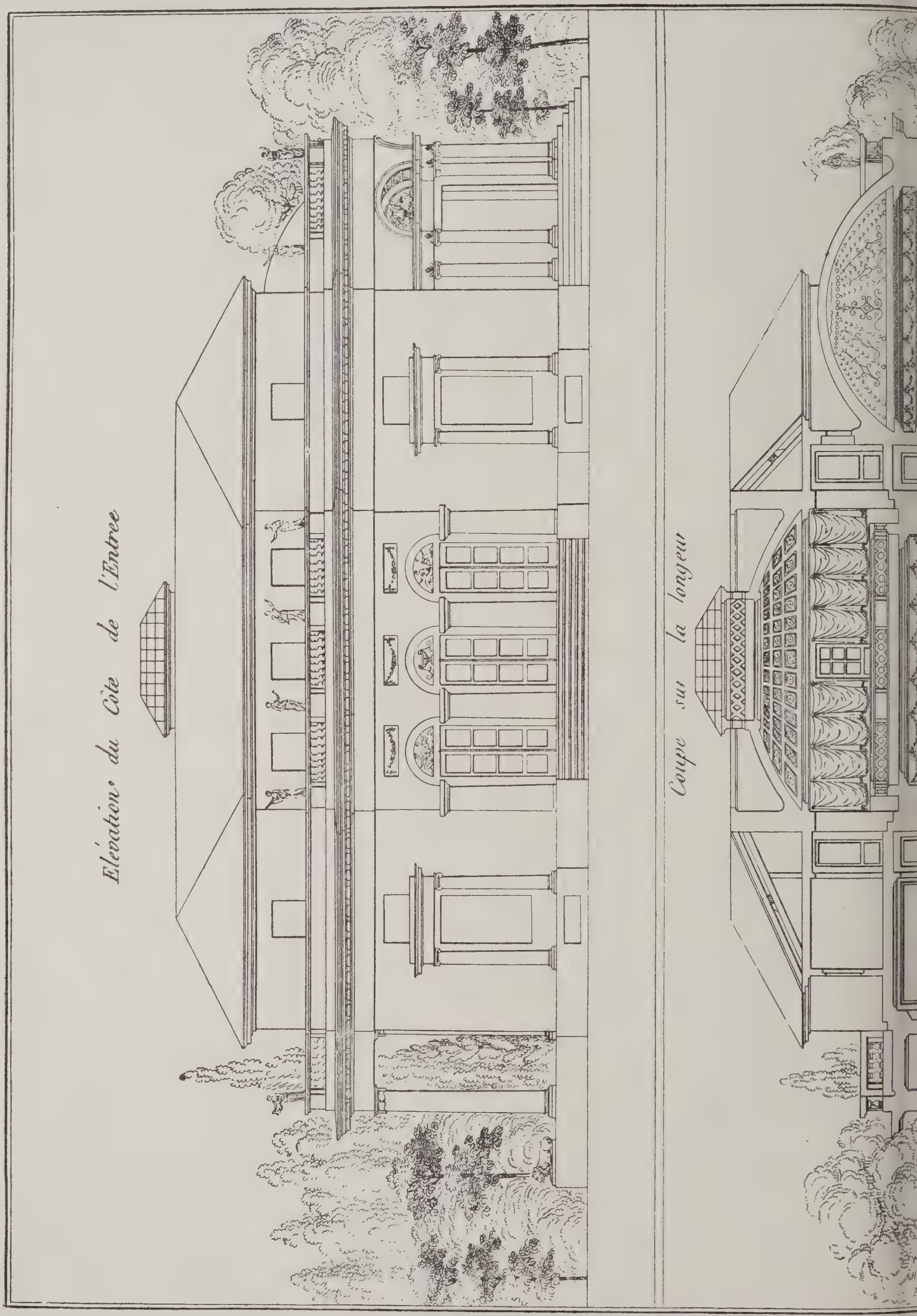
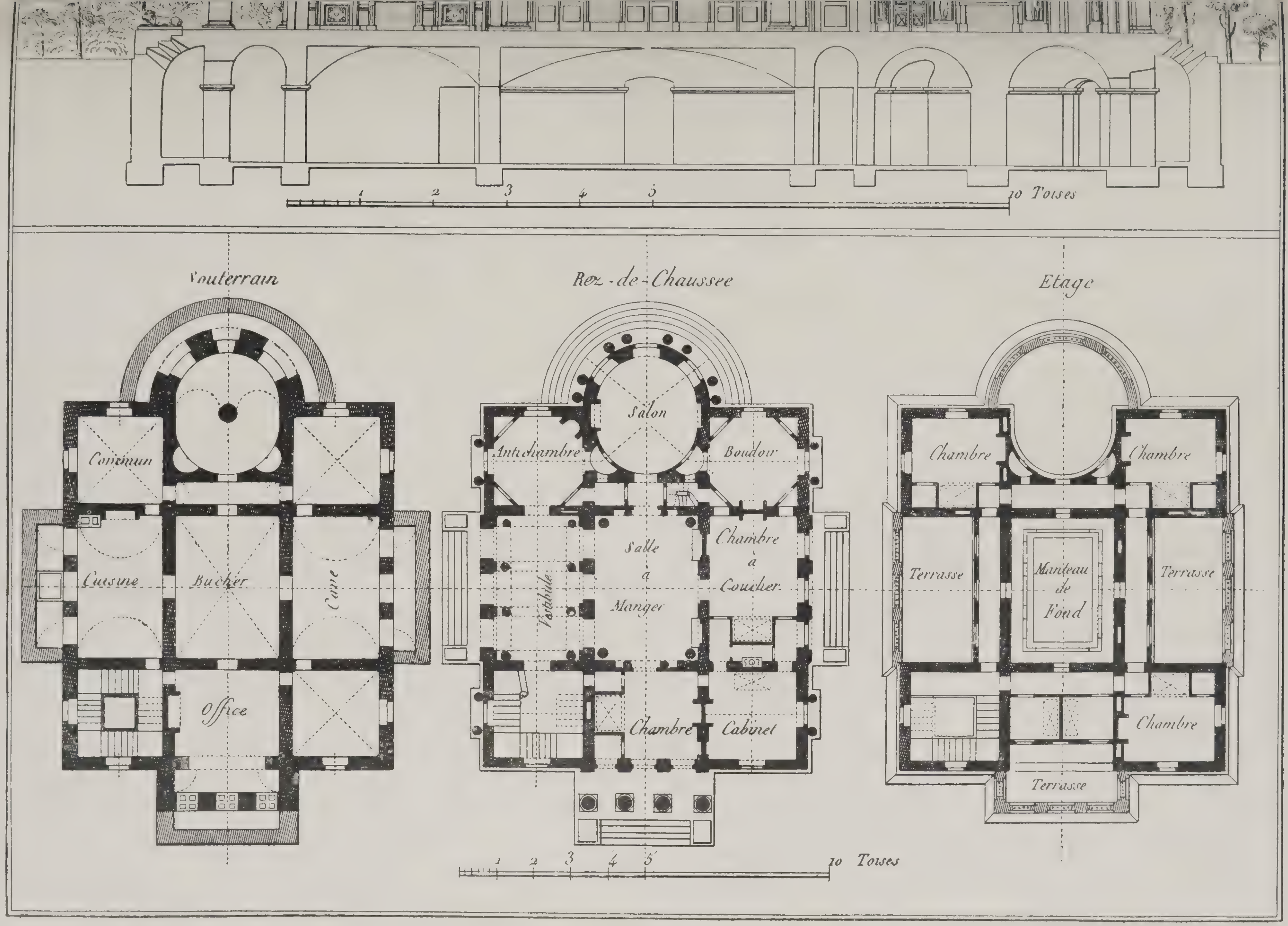
upplement to "The Architects' and Builders' Journal," Wednesday, March 24, 1915.





DESIGNS FROM KRAFFT. VI.—HOUSE OF M. MOITTE, AT MANTES.

HAPPE, ARCHITECT.

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THE PLATES.

Design for Triumphal Arch.

ue time we shall have occasion for triumphal
:hes, and then these designs by Daniel Marot
›uld be found to be of particular service. They
no means pure in style; there is an elaborate-
›out them which might well be repressed; and
.re features—like the gallery across the arch in
esent example—which could be omitted with
:age; but the richness of their composition alone
; to claim special attention for these designs.
:ch illustrated in the present issue is intended,
in the same series, to emphasise the importance
King's military achievements, as well as, accord-
the manner of the time, paying exuberant
to his personal greatness.

Mantelpiece in Boodle's Club.

ornament on the firegrate, with its chimera and
; torches, is clearly an adaptation from Roman
les, and the marble relief above is derived from
me source. The metal casting, of brass, we
, on an iron base, is finely finished, as it should
an object so conspicuous and so close to the
d the marble carving is executed with rare skill.
Adam was particularly successful in his furnish-
He and his brothers were in a position to com-
he most skilled craftsmen, whom, doubtless, they
. and directed personally until they were capable
ducing work of the highest possible finish and
ion. Innumerable mantelpieces in marble, wood,
ıster are credited to them—far too many, in fact,
ver to have been possible for them to have seen
e number, this being due probably to the great
ey took in the instruction of their workmen, who
'hen they were left to their own devices, were
: of doing work of acknowledged merit. The
piece in the saloon at Boodle's is a splendid
en of Adam work.

McKinley's Birthplace Memorial.

take this design from "The American Archi-
s an example of a current competition design in
ıited States. It does not display the same high
which we are accustomed to associate with the
›f McKim, Mead and White, but probably the
vill look immeasurably superior as carried out
does in the drawing. The plan is especially
ting. There is a central courtyard with a peri-
nclosing a monument of President McKinley,
›aved walk around; while to the left is a library
sing reading, reference, and stack rooms, and to
:t an auditorium.

A Roman Entablature.

illustration shows a fragment of the entablature
:e Temple of Antoninus and Faustina, which
:cted A.D. 160 by Antoninus Pius and dedicated
Senate, on his death, to himself and his wife,
:re deified. The vestibule of the temple, com-
eight Corinthian pillars of green cipollino sup-
g an architrave and part of the cellæ, still
s.

Demidoff Monument.

monument, in the cemetery of Père Lachaise,
s to the memory of Elizabeth de Demidoff (born
'ss of Strogonoff), wife of the Chamberlain to
ır of that time—1818. It is set up upon a mound,
vault within. The sarcophagus is a copy of an
: one. All is of Carrara marble. Jaunet was the
ct, and Schwind executed the carving.

position from St. George's Hall, Liverpool.

drawing reproduced is by Mr. H. Chalton
aw, a student at the Liverpool School of Archi-

House at Mantes.

This is an especially pleasing example from Krafft's collection of late eighteenth and early nineteenth century houses in and around Paris. It offers a striking illustration of the charm of architectural shapes and planning; the treatment of the dining-room in the centre and the oval salon being very noteworthy. Incidentally one observes, as in other examples of the same period, the curious placing of a bedroom opening off the dining-room.

CORRESPONDENCE.

The Individuality of Towns.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Wherein does "The Individuality of Towns" consist? Mr. Barry Parker, I see, gives this title to a lecture he delivered at Birmingham University; and one's first impression of it is that it is a very happy title, forming an excellent text for fruitful discourse. Of course, as Mr. Parker implies, the individuality of the town should be respected by the town-planner. An excellent general principle, no doubt; but how to observe it? Sometimes it would be more honoured in the breach; for the individuality of certain towns that could be named is mainly reprobate, and to "maintain" it would be like compounding a felony. But while there are evidently some few occasions for a rather ruthless suppression of undesirable individuality (otherwise there would be no necessity for the town jail!), there are, it is to be hoped, very many more for the sympathetic regard to which Mr. Parker does well to give prominence, lest town-planning get too exclusively into the hands of the engineer, with whom sympathy of this kind is not reputedly a passionate obsession.

I am by no means suggesting the elimination of the civil engineer. In the larger schemes of town-planning there is much work that he alone can do; but I think that when it comes to a question of who should direct such work, the answer should be, the architect, he being far better qualified than the civil engineer to show a reasonable regard for the individuality of towns.

F. R. D.

A Suggestion for Cheap Cottage Building.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Allow me, as one who has a little interest in architecture, to make a suggestion.

I have had great interest in reading your journal each week and upon reading Mr. Thomas Potter's article, "Some Salient Factors of the Cottage Problem" (March 10), the following idea came to me:

About two years ago I visited Stratford-on-Avon, and while there I saw over the Harvard House, in one of the rooms of which part of the wall was cut away, showing the construction. Near this was an example of modern lath and plaster showing the superiority of the old work over the modern work, and I was much surprised to note that the core of the wall of the old house was a very humble wattle fencing, but of such strength and stability as to make it equal to my thinking to a moderately thick stone wall.

My idea is this: would it not be possible to build cottages and small houses in the same manner, namely, have the core of a substantial wattle fencing, comparable to the specimen mentioned above, with a thick coating of plaster inside and out, but have on the outside a facing of brickwork; would not such a cottage be not only stronger in every way but also, and this is the point I want to emphasise, would it not cost much less and not only cost less but perhaps cottages a little larger could be built?

Clifton. CHARLES BURRIS.

LIFE IN AN AMERICAN SCHOOL OF ARCHITECTURE.

[SPECIALLY CONTRIBUTED BY ARTHUR STURGES HILDEBRAND.]

THE American public has, in general, no idea of how an architect is made. Even when he is made, he is but little understood, for an architect is regarded as a difficult character in whom there is a constant struggle between opposite tendencies; he is partly an artistic mathematician, and partly a mathematical artist. To reconcile these tendencies, and to unify them in himself, is the task of the architectural student during four years of close application and exhausting work, tempered by the happiness which comes from work done in enthusiasm. The school makes of him the greatest demands that he has ever had to face, claiming every moment of his time and interest, but, if the student does not drop out from loss of health or diminution of enthusiasm, he can look back on his school-days as the happiest of his life. All school-days have a charm when recollection has softened their unhappinesses and dispelled the illusion of their drudgery, but architectural school-days are better than others.

The freshman gets little happiness from the beginning. New York swallows him, and the school absorbs him. He begins in a huge and hurrying city and in a pitiless driving institution which has as its main objective the unbelievable transformation of the timid amateur into a professional architect. On his way to school he pauses a moment before a shop window containing an impressionistic painting of wet leaves blown across a garden path, and he shudders at his own responsibility. Turning away, he sees a huge vermilion frame towering against the blue, swarming with clambering men—one throws sputtering hot rivets in trails of sparks to another who stands on a dizzy platform to catch them in a bucket—and in the midst of the roaring activity he catches a glimpse of a little man in his shirt-sleeves with a roll of blue prints under his arm. There is endless discouragement in these two evidences of the extremes which must eventually harmonise within him; he does not know whether the school will make of him an artist in a velvet jacket, painting gloriously the brown avenues of the Luxembourg Gardens, or will put the emphasis on the man with the blue prints, whom imagination pictures working late at night over difficult problems of foundations and roof-trusses. He enters the frigid dignity of the unsympathetic university buildings as raw material enters a machine.

As the freshman climbs the stairs through the odours of the department of chemistry, which occupies the lower floors of the building, he welcomes the casts of ornament which are hung on the walls, for they seem to define practical limits to the knowledge he must achieve. There is a row of drawings hanging on a rack in the middle of the corridor. Their faultless excellence fills him with terror. Incredulous, he makes a reverent examination to see if those balusters are real, or only drawings, and his soul oozes from his boots as he sees the shadows cast on every one. The hall is full of these inhumanly clever things. Heart-sick and miserable, he turns away, and timidly joins a group of other freshmen who stand talking beside a plaster model of the Parthenon. They also are discussing the drawings, laughing for very misery at their own lack of ability. One, whom the rest call Frog, says "Hullo!" God bless you, Frog! Life has begun again.

The first day the freshman receives his schedule of work. The Director is a kind, fatherly man, who seems not to be embarrassed at the freshman's ignorance nor surprised at his timidity. There are ten hours a week of lectures in the history of architecture and ornament, and decorative design, with the afternoons free for
drawing. This sounds human and possible: the f
man feels braver. The group in the atelier gro
size and confidence; their conversation assum
technical air as they talk of materials and instrum
of "freehand," "elements," and "shadows." A
close of the afternoon they have become suffici
organised to draw lots for tables, and a few weak
arise, and stories of prophecy as to what is to be
of us all in the days to come, as the boards and
trestles are arranged. A glorious and heart-war
feeling of friendship reassures the timid group
prepares it to face the inevitable, merciless pr
The drawings on the wall are still of a distre
excellence, and not in the least understood, but e
siasm for the common work has bound eve
together. They go to their rooms happy and ea
begin. In the evening, a group goes to the "N
exulting in their fresh young greenness and
emotions, thinking of the atelier between the bo
of the variety, and chattering together as if the
been born in this estate. The future seems a won
adventure. The process which is to absorb thei
for these four years, making them forget even th
immediate purpose of becoming architects, has b

None of the upper classmen have come—we ve
to peep into their atelier at the other end of the
ing; we explore the library, and stand in awe
the rows of books which men have written of
profession. The first lecture is a thrilling exper
class begins with the long roll-call which is to be
so familiar. We take industrious notes—later sc
—of the beginnings of Assyrian ornament, and
queer, misshapen drawings of early Egyptian
One lecturer is quiet and confidential, seeming t
our ignorance under his protection, another fier
exacting, putting us on our own responsibility
whether we sink or swim in this struggle. Eit
these attitudes makes for courage. We hurry
atelier to begin our first "Order plate." Oh, the
we take and the labour we expend on the T
Order, working for days on a smudged and
drawing which can hardly be recognised. We sa
resent the professor's comment of "What's this
to be?" as he walks between our tables, a
measure and smudge and blot the harder. Ink-s
and brushes appear, and we strive to learn the
washes, flat and graded, to the despair of the
classmen who try to show us, taking the brushe
our hands. There are days of alternate joy and g
sometimes the drawing is good, and we
encouraged, and we are proud, and stop work a
earlier, but often it seems as if Fin drew bet
Frog laid a smoother wash, or that Georg
shadows with more certainty. We fight to keep
work that has fallen behind, and fight each o
surpass in skill, making no progress to pay f
unrelenting toil. Yet the upper class-men tell
we do not know what work is like—wait till we
Design!

Word goes from one to another that there a
Elements plates to be done before Christmas.
think of all the back work in shadows, all the fr
we have neglected, all the washes, all the lectu
must attend. We decide to protest, and su
petition, which is, of course, rejected, resulting
a speech from the Director, in which he tells us
do not know what work is like. We decide to
and no one hands in his Doric Order on t
assigned. This earns us an extra plate to d
penance. We go back to work with sullen dete
tion; sometimes every man of us stays at his ta
five o'clock, using up our surplus energy in thun

races around the Parthenon. Somehow all the
is accomplished, and we are revived to a gleam of
siasm at the knowledge that we are to make
red drawings of the Orders after the holidays.

the first exhibition of sketches by the upper
s, who take Design, we are plunged again in
ir. We feel that we can never equal this work;
he drawings which received no award, hanging
gether in an ignominious group labelled "stung,"
far beyond our reach. There is nothing for it
work harder and to have more stool-races. The
roblem in Design is hung in the hall for our dis-
gement. Slowly and by imperceptible changes,
shman begins to take heart. We become proud
conversation is sprinkled with professional terms
criticise, in low tones, the drawings hung in the
we begin to notice variations in the quality of the
which is our inspiration. We feel that we shall
stung when we submit our first problem, but
s we can produce something that will be recog-
as an attempt, and an improvement on our
t uselessness. Meanwhile our Order plates, and
nd work, and shadows, and elements, and
s, continue to drive us.

he approach of warmer weather work becomes
lifficult; we incline more towards the artistic side,
it more harmonious with the moods of spring.
ver is steely blue and misty as it flows below the
les on the other shore, and students sit in idle
before the open windows to watch the ice drift
h the current.

the year is gone before we know it, and we
that all the work is done, though we often wake
nt in horror at its inefficiency, and the summer
nations are over, though at the time the seats
arder and the slow hours slower as we write and
nd cast shadows and pray. The atelier has a
andoned look, with the tables pushed aside, and
ols piled in a corner; the good year is over. We
ur summer work to think of, for each student
work six weeks in an architect's office as a
ry part of the school routine. It seemed as if
ld never find places to work. Fin went to thirty-
fices in that broiling June weather, and at last
a place where he was the only draughtsman,
oy and manager combined, at a dollar a day.
d stories to tell when we came back to school in
umn—Frog the least of a force of eighty, Fin
atest of a force of one.

egan our second year with high hopes, for the
dge that our work in design was to be a source
ging fear in our successors lent dignity to our
We were eager to begin and eager for every
f information on the subject. There were two
problems—*projets*, for which we were allowed
vo to six weeks, and *esquisses*, which took ten
On a *projet* there were three awards—a
on," counting three points, and a "special
" and "medal," each giving an additional
The *esquisses* gave a point for a "mention," and
itional point for the other two awards. The
nme of a *projet* was given to us on the morning
tch day"; in the evening we submitted a sketch
eneral scheme with which we intended to meet
uirements of the program. The sketch was
orked out in final form during the succeeding
An *esquisse* was issued, studied, drawn up, and
d within ten hours. The course in Design was
in three degrees—Elementary, Intermediate,
dvanced Design—occupying, in general, the
third, and fourth years in school.

s an important day for us when we took the
for our first problems. Our ideals and
sm were ahead of our ability—it must be so,
is empty—and the subject of a library door-
med beneath our enthusiasm, though it proved
beyond our ability. But we did not know this
on sketch-day when we produced our ideas. All of us disregarded the advice of those who had gone before us, and insisted on making our sketches so definite that we were bound hand and foot to the hasty and unintelligent scheme which first occurred to us. Later we learned the trick of showing the sketches which might be interpreted as almost anything—we learned to draw windows which might be square-headed or arched; to put in lines which might be clouds or a dome; to scrawl masses which might be groups of statuary or shrubbery—and we saw that if drawn with careful haste, poplar trees might be turned into columns, and columns into poplar trees. But these were subsequent developments. In our early days we despised vague sketches as the last resort of the unskilled; we even hated clever renderings, though none of us was capable of cleverness, and we often rejected the advice of our critics because it seemed to conflict with what we were pleased to call our individuality. Since we were too young to invent, our designs were usually hopelessly conventional. Our inventions would have been more horrible still.

But there was no lack of earnestness; we worked hard on the problem, taking it to lectures and to meals and to bed with us, changing and redrawing a thousand times till the last week of the problem found us still in pursuit of the artistic ideal which always kept ahead of our efforts. The problem was due on Saturday at six—Monday we made our stretches and began our final drawings. On Thursday morning most of us were ready to ink, but a charrette was inevitable because we worked so slowly. We drew furiously all day, in a panic of fear that we might not finish, stopping only to dream of the points we were to acquire as a reward. Three of us worked all night in Billy's room, visited every three or four hours by our comrades from adjacent rooms for relaxation and cigarettes. The boards were propped up on chair backs, the light was poor, the air nearly opaque with smoke, the dawn terribly cold and grey. We cast shadows and lettered the titles while the birds were chirping. It was useless to try to render; every colour looked yellow. We took baths and went to breakfast, carrying our boards back to the atelier to finish. We rendered all day, carefully at first, and later in utter abandon, as the misery of the unsatisfying result unfolded itself before us, for this was our first charrette, and we had not yet learned to try up to the very last; we were too anxious for anything which would release us. At six we handed in our drawings, resolved never to be caught again on charrette, utterly relieved to be finished, ashen and pale-eyed. But after thirty-three hours of work, we found that we could not sleep at once—the sense of relief was too great; we found an underlying enthusiasm in our freedom, and spent the evening at the "Nemo," laughing weakly at the stale jokes and slap-stick comedy. This let us down to a mere heart-breaking fatigue. Our last waking thought was—"it is over."

On Wednesday our drawings were judged. We gathered around the Tin House door while the jury were deciding, and we rushed past them when the door was opened, to find our drawings and know our awards. The three of us who had worked all night in Billy's room were stung—there was a cross in red chalk on the corner of our mounts to tell us that our charrette had been so much time thrown away. We turned away with tears. Oh, it was a galling defeat to face! There was no consolation, no relief from the bitterness of spirit which possessed us, until a night's sleep and a day's reflection showed us that we had learned much—the next problem was our chance to prove it. Our enthusiasm could not be permanently chilled. Saturday we took the sketch for the next problem, courageous in the knowledge that there was always another chance.

(*To be concluded.*)

ENGLISH CHURCH MONUMENTS.

At last week's meeting of the Royal Institute of British Architects Mr. James Williams read a paper on "English Church Monuments." With the aid of numerous lantern slides, he showed in great detail the development of the sepulchral monument throughout the centuries. As regards effigies in metal, he expressed the opinion that perhaps no church could show a more complete and beautiful series than Westminster Abbey, the earliest being those representing Henry III. (d. 1292) and Queen Eleanor (d. 1291). A feature of the fourteenth century was the table tomb with lofty spiral canopy, like those of Edward II. at Gloucester and Sir Hugh Despencer at Tewkesbury. Early in this century the engraved figure on plates of brass of Flemish origin appeared competing with the carved and painted effigy, but all continued in use together. Wall tablets, comparatively rare in mediæval times, had an example in that of Godfrey Foljambe, in Bakewell Church.

The fifteenth century was notable for the number and richness and great variety of its monuments. The triple-arched, canopied, recessed tomb with bold cornice was a common form, and a special feature of the century was the development of chantry chapels in great numbers.

Late Gothic work was well illustrated by the magnificent chantry chapel of Prince Arthur, eldest son of Henry VII., in Worcester Cathedral, showing the rich and redundant tracery of the windows and wall panelling, the small carved and canopied inches which cover the piers, and the heraldic shields and decoration which fill the panels and ornament the cornices. Other instances were Bishop Alcock's chantry at Ely, that of Bishop Fox at Winchester, and the great chapel of Henry VII. at Westminster. The final development of Gothic, as seen on the monument, resulted in a great display of mechanical skill; this appeared in the repetition of familiar details and ornament, all wrought in harmony with the upright and horizontal lines of the panelled tracery and the canopied niche. Never had the carver such an opportunity as the chantry chapel and monument provided in filling the niches and furnishing the sculptured subjects and carved ornament for cornice and string. Equal scope was there for the painter in covering the free spaces of vault and panel and the whole monument with glowing colour.

Mr. Williams went on to describe the decline of Gothic art in the middle of the sixteenth century in favour of the Classic style, and said both the Dutch and Italian influence played a great part in the production of many monuments of Classic character in the seventeenth century. Eventually, chiefly through the works of Inigo Jones and those of Christopher Wren, John Webb, Hawksmoor, and Vanbrugh, Roman architecture was fully introduced into this country. Most of the architects designed sepulchral monuments or worked in conjunction with sculptors and monumental masons. An enormous number of Classic monuments, of widely different merit, had been put up, all more or less interesting from the human as well as the architectural point of view.

Monumental sculpture, however, became strangely altered from its original purpose and fell from its high estate. In the best periods of Gothic art the carved effigy was treated conventionally, as an important accessory to the design of the monument. To attempt an actual copy in sculpture of a deceased person was never intended, the limitations in the use of all materials were freely acknowledged, and the desire was to give an ideal representation of the figure, in an architectural setting, and as part of a monumental scheme. This simple and beautiful unity of purpose, which distinguished the best work of the thirteenth century, gradually gave place in monumental art to an expression of the pride of life, when the dignity and grandeur of office and position was ostentatiously displayed. Originally most of the sculptured effigies were represented peacefully lying with folded hands, as if in prayer; in later times the attitude materially changed, the figure being shown restlessly reclining with the head supported upon the right hand and arm. Some, as if very uneasy, are sitting up wide awake; others eventually appear standing upright, gaily attired, and looking round on the world again.

In conclusion Mr. Williams said, with reference to the monuments which were being put up in our churches, more especially in Westminster Abbey and in the cathedrals, it was high time some strong protest were made. If a memorial must be erected "inside" the church a small tablet should in most cases answer the purpose. The churchyard, however, offered the least objectionable alternative; but here the monotonous display of hundreds of white crosses and tombstones all of the same type showed to what depths the public taste had sunk. In the case of Westminster Abbey, crowded as it was with tombs, it was a disgrace that more were being allowed to be put up. Various reasonable suggestions had been made to meet the requirements for monuments, when of a national character, and these ought to receive the immediate attention of the responsible authorities. The old cathedrals and churches were too precious to be further invaded and disturbed by any modern productions. An exception, perhaps, might be claimed, with reluctance, for such a masterly work as the beautiful monument by Alfred Stevens, one of the greatest sculptors and painters of modern times, erected in memory of the Duke of Wellington in St. Paul's Cathedral. It worthily illustrated the best traditions of both Classic architecture and sculpture, and might be compared with the works of the most noted Italian artists.

Discussion.

Mr. Arthur Keen, in proposing a vote of thanks, said he had been impressed by the admirable manner in which the almost infinite possibilities of Gothic detail had been illustrated. In all the examples shown there was no evidence of conscious effort or striving after originality. It illustrated the amazing scope for variety and difference of conception in Gothic design, although he was not going to prophesy that our next great revival would be a Gothic one. Another thing that occurred to him was that what they had seen served to refute what was once an almost standing criticism of Gothic decorative detail, namely, that it used the features of constructional work falsely in decoration. The examples they had seen showed constructional features freely used in an entirely decorative sense, but in all cases with such judgment and right feeling that criticism failed. Further, he thought that many of the fine qualities of these monuments were due particularly to the fact that the men who made them were also the men who designed them. Again, the distinguishing characteristic of the mediæval sculptors was their truthfulness. In every sense they represented what was current at the time; hence the great value of their work now.

Mr. Lawrence Weaver, seconding the motion, said he was particularly in
in the Foljambe wall tablet in B
Church. In view of the fact that w
have to put up a large number of
rials, and there was no room for
ments in the churches, these wou
to take the form of wall tablets,
that at Bakewell was one of the
he was acquainted with. He beli
original of the wall tablet was the
at first, removal of the semi-effigi
slab from the floor of the churc
wall in order to make room. He
more study had not been devote
memorials of the seventeenth a
teenth centuries, and said it would
resting to find how far and wi
result the Baroque movement in
English memorials.

A SUSSEX MEMORIAL

Recently the Duke of Norfolk,
Lieutenant of the County, un
memorial to the High Sheriffs of
which has been placed in the co
the County Hall at Lewes, and
the whole length of the wall from
of the main staircase to the coun
ber. It is made of best Austrian
carvings in limewood of a floral
the light-coloured wood upon
background displaying the
advantage. At the top of the
there is a centre-piece forming
depicting the Sussex coat-of-arms,
mounted by a visor. There a
panels, three on each side of
elaborate centre, one of which
reserved for the most recent Sher
names, which are in gilt, appear
names of the Sovereigns in who
they held office, and these are ins
ribbon scrolls. The Sheriffs
1129, in the reign of Henry I.,
present time. The cost of the
about £400, has been borne b
former High Sheriffs. The de
made in the County Surveyor's
ment, and the joinery, carving,
struction have been carried out
Godfrey Garrad, of Eastbourne.

DAMAGE TO ROADS BY MOTORS.

In view of the complaints w
been made as to damage caused
by certain classes of heavy motors
motives, the President of the Loc
ment Board has appointed a sm
committee to inquire into the
of the existing requirements wi
to the construction of these ve
cluding weights on wheels, width
diameters of wheels, etc.

The terms of reference are:
sider the law and regulations
the construction and use of roa
tives and heavy motor-cars
Britain, and to report what am
if any, are desirable."

The committee will consist
Shortt, K.C., M.P. (chairman)
G. G. Asher, W.S., Mr. P M. Cr
M.I.C.E., Mr. H. H. H
A.M.I.C.E., Mr. E. J.
M.I.C.E., Mr. J. E. Th
A.M.I.C.E., and Mr. J. Willm
with Mr. R. J. Simpson, of
Government Board, as secretary.

It is understood that a Joint S
mittee to consider questions
contributions by motor omnibu
cost of road maintenance is als
plated.

UIRIES ANSWERED.

Plaster " Blowing."

ucks) writes: " The plaster on the
nd ceilings of a house have been
some eight months now, and small
ise up and flake off, and the sur-
omes pitted. The ceilings have
tempered, but the walls have not
thing on them yet, and the blow-
urs in both. How long is the
g' likely to continue? Please

e lime in the plaster changes in
carbonate of lime, but until this
is effected trouble similar to that
ed by the querist commonly occurs
e use of insufficiently burnt or
e unsuitable lime, which does not
roperly. Any after-treatment is
less fortuitous, but it might be
e to experiment with a remedy
ometimes attended with success—
the application of a wash of much-
sulphuric acid—say a tablespoon-
ach quart of water—which will
the free lime to sulphate of lime
perhaps prevent further mischief.
lly, we do not put much faith in
emedies. Properly constituted
does not " blow " to any appre-
xtent. Approved chalk lime, free
mps, flares, or core, should be
d the plaster should be run at least
before used, but these conditions
often ignored, with the result that
lime asserts itself very disagree-
low long it will continue to do so
on the extent to which the matur-
ess was neglected.

Ancient Lights.

writes: " I should be glad of your
respect to ancient lights shown by
nying diagram. The adjoining
is a dwelling-house in a rather
ighbourhood, and is occupied at
y three families. The bathroom
of the adjoining premises is at
covered with coloured paper in
of stained glass, thus blocking
nsiderable amount of light. As
seen from the section, the roof of
extension comes well below an
45 degrees drawn upwards from
m glass line of this window, but
the light be interfered with, the
paper can be removed. The only
ndow which might be robbed of a
mount of light is the sitting-room
but here again the whole of the
t has always been blocked out by

my client's scullery and w.c., and it is very doubtful if the proposed extension would cause the light to be diminished. In my own mind I have little doubt that when the proposed extension is carried out, and the whole of the side wall coloured white, the rooms in the adjoining property will get just as much light as they do at present, and a good bit more by removing the coloured paper from the glass."

—I conclude that it is not contested that all the windows shown on the drawings of the adjoining property have been in existence twenty-years, and are therefore justly entitled to be regarded as " ancient lights." The obstructions (coloured paper, etc.) which the adjoining owner (or his tenant) has himself placed to the lighting of his premises have nothing to do with the question, except, perhaps, as evidence showing that, at present, he enjoys more light, or publicity, then he has any need of. He may, of course, remove these obstructions at any moment. There is no doubt that to a certain extent the access of light to his two bedrooms and the bathroom on the first floor, as well as to his sitting-room, pantry, passage, and kitchen on the ground floor, will be affected by the raising of the adjoining premises; but I am of opinion that the injury will not be sufficiently material to entitle him to any redress by legal process. The " angle of 45 degrees test," though useful in practice, has never been completely upheld in a Court of Law —the " injurious affecting " of one's light must be material and not sentimental, and regard must be had to the purpose for which the room, in particular question, is ordinarily employed; the sitting-room and kitchen are then the vital points in this scheme. Were I the adjoining owner I should ask you to paint your external wall white, or better still to use white glazed bricks), and I should then be quite content. Why not consult your neighbour before commencing work? F. S. I.

OBITUARY.

Commendatore Walter Crane, R.W.S.

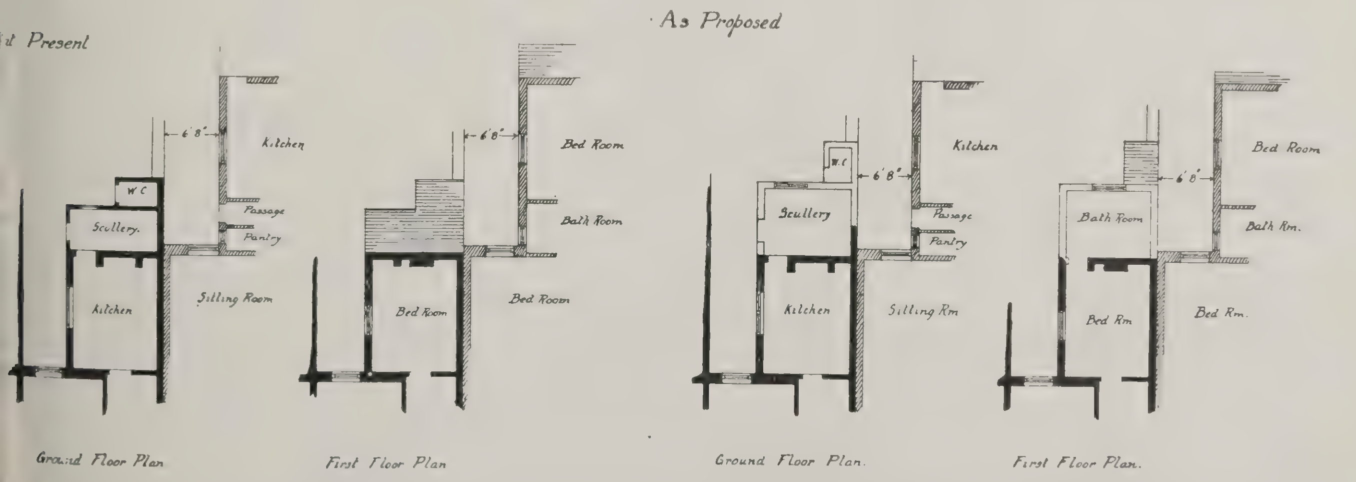
Commendatore Walter Crane, R.W.S., who died on Sunday evening, March 14, as a private patient in Horsham Cottage Hospital, was born in Liverpool on August 15, 1845, the second son of Mr. Thomas Crane, artist, of Chester, who, as a student of the Royal Academy in 1825 was awarded one of its medals. When Walter was twelve years old his parents removed to London. At the age of sixteen he exhibited in the Royal Academy of 1862 " The Lady of Shalott." For three years he was apprenticed to W. J. Linton, with whom he learnt to draw upon the wood. His first illustrated book, " The New Forest," appeared in 1863. In 1889 he was elected an Associate of the Royal Water Colour Society, and in the same year received, at Paris, a silver medal for " The Diver." In 1895 he was awarded the silver medal of the Society of Arts for his lecture on " Applied Arts and their Relation to Common Life," and a gold medal at Munich for his " Chariots of the Hours." At Paris, in 1900, he was awarded a gold medal for mural tile design; and he gained a gold medal and grand prize at the Milan International Exhibition of 1906. He illustrated many books for children, several of Shakespeare's plays, and drew innumerable frontispieces, head and tail pieces, and other decorative designs, for scores of books. Among his chief paintings are " The Renascence of Venus," now in the Tate Gallery; " The Fate of Persephone," which went to the national collection at Karlsruhe; and the " Bridge of Life," which is familiar in engravings. His principal decorations are mentioned in this week's editorial pages, where also is given an appreciation of his career. He was the author of several books and of many magazine articles on art and sociology. He was named Commendatore of the Order of the Royal Crown of Italy in 1903; and his own portrait, painted by himself, has been placed in the Uffizi Gallery.

Mr. James Jennings.

Mr. James Jennings, builder and contractor, of 108, Whitechapel Road, and Sidcup, Kent, who died recently, was probably the oldest tradesman in Whitechapel, and was the grandson of the founder of the business, which was established in 1810 at 5, Union Street, being transferred to the present address forty-eight years ago. Mr. Jennings was seventy-four years of age and leaves three daughters and one son, Mr. James H. Jennings, who has conducted the business for many years, and will continue, of course, to carry it on.

Mr. Henry J. Rossiter.

Mr. Henry J. Rossiter, of the Grange, Bishopworth, who died on February 26, at the age of sixty-four, after a long illness, began business as a builder in Bristol many years ago, and erected several elementary schools, and also the Convalescent Home at Durdham Down, which was opened by Queen Victoria.



ANCIENT LIGHTS.—CLIENT'S EXISTING PROPERTY, BLACK; CLIENT'S PROPOSED EXTENSIONS, PLAIN. ADJOINING PROPERTY, HATCHED.

SOCIETIES AND INSTITUTIONS.

French and English Gothic.

An interesting comparison of the cathedrals of Amiens and Salisbury—two contemporaneous buildings which are frequently regarded as typical of the Gothic architecture of France and England respectively—was given to the members of the Sheffield Society of Architects and Surveyors by Mr. J. R. Wigfull. Mr. A. F. Watson presided. The lecturer said it was often claimed that Gothic architecture originated in France and that England borrowed it, but later investigation seemed to show that there was a separate development in each country. The English might have borrowed from the French to a slight extent, but not in the wholesale manner that had been suggested. With the assistance of a series of slides from his own photographs, Mr. Wigfull took his hearers in detail through the two cathedrals, comparing the buildings externally and internally. They were both commenced in the year 1220, and they are practically the same length, but the width and height of Amiens are very much the greater of the two. Mr. Wigfull was heartily thanked, on the motion of Mr. J. B. Mitchell-Withers, seconded by Mr. W. J. Hale, supported by Councillor Fenton and Mr. H. L. Paterson.

Architecture in North America.

The lecturer at the usual meeting of the Leicester Society of Architects at the Rooms in St. Martin's East, last week, was Mr. George Nott, A.R.I.B.A., who gave an interesting address upon some recent architecture in North America. Mr. Charles Kempson, the president, was in the chair. Mr. Nott briefly traced the architectural tradition of North America, and alluded to the influences at work in the present day, referring especially to the progress made towards the development of a national style of architecture. Turning to Canada, the lecturer spoke of the effect of climatic conditions upon the architecture in that colony, and dealt with the special influences at work in Canadian architecture. The subsequent discussion was shared by Mr. B. J. Fletcher, Mr. Harris, and Mr. Brand, and on the motion of Mr. Turner, seconded by Mr. Herbert, a hearty vote of thanks was accorded the lecturer.

Bridlington Master Builders' Association.

At a meeting of the Bridlington Master Builders' Association last week Mr. E. H. Harper, Central Chambers, was appointed secretary in succession to Mr. J. W. Wilson, who has resigned after five years' service. Mr. F. W. Martindale presided. A resolution was passed putting on record the capable manner in which Mr. Wilson had performed his duties, and it was decided to present him with a fountain pen from the members. A subscription list was opened on behalf of the Belgian Builders' Relief Fund.

The Development of London.

The third annual general meeting of the London Society was held on March 9 at the Royal Society of Arts. The Earl of Plymouth, who presided, in moving the adoption of the report, said that the object of the Society was to turn the gifts which Providence had given them to such purposes as would be most useful and helpful at the present time. They were trying to find a way of doing more useful work than was originally in the general programme. They were copying the example set at the time of the French Revolution, when during that time a great deal of the rebuilding of Paris was conceived and definitely set on paper. The Society had engaged a number of professional men who were sufferers by the war to prepare plans for the future development of London. Sir Aston Webb described some of the work of the Society, particularly with regard to improvements in South London, the rebuilding of Charing Cross Bridge and the station, and the extension of London arterial roads.

NEWS ITEMS.

Change of Title and Address.

We are informed that the (U.K.) Winget Concrete Machine Co., Ltd., have decided to shorten the name of the company to Winget, Ltd., and that they have taken more commodious and central London offices at 25, Victoria Street, Westminster, S.W. The head offices are at 5, Star Buildings, Newcastle-on-Tyne.

Photographic Records of Reims Cathedral.

Mr. A. S. Walker, speaking at the Y.M.C.A., Tottenham Court Road, said that Reims Cathedral had been photographed practically inch by inch by a photographer who loved the structure, and any restoration of the building would only be possible from these photographs, as no other detailed record had been preserved.

100,000 *Two-Roomed Houses for France.*

British Columbia millmen have been asked to bid on a contract for 500,000,000 feet of lumber to be used in constructing 100,000 two-roomed houses in France (says the American Consul-General at Vancouver). The houses are to be built at Government expense for the use of people who have lost their houses and other property in the war.

Boston Towers Re-Built.

Reopening services have been held at the Boston Wesleyan Church on completion of the work of re-building the towers. It had been found that the towers were subsiding and Sir Francis Fox reported that their re-building on a pile foundation was necessary. The towers were accordingly taken down stone by stone, new foundations made, and then the stonework was replaced in its original position. The cost of this work has been £3,000.

Wages Movement.

A joint meeting representative of the Wolverhampton branches of building trade operatives has been held, at which the following important resolution was passed, a copy to be sent to Mr. W. Vincent Vale (secretary to the Wolverhampton and District Building Trades Employers' Association): "That in consequence of the greatly increased cost of food and other commodities, application be made to the Wolverhampton and District Building Trades Employers' Association for an increase in wages of 4s. per week as a war bonus towards meeting the increased cost of living, and that we request the Association to receive a deputation of the operatives at an early date."

Architect's Forty Years' Service.

At a recent meeting of the Gateshead Board of Guardians mention was made of the fact that forty years have passed away since Mr. Lister Newcombe, F.R.I.B.A., was first engaged as their architect. Mr. Newcombe's first work for the guardians was done in 1875, and comprised ac
and alterations to the old workho
Union Lane, now Coatsworth Ro
Bensham Avenue. The subsequen
cipal works supervised by Mr. Nev
comprised the building of an entire
workhouse at Bensham; at Shotley
Cottage Homes, and also the hospit
for consumptives, and extensive bu
for the accommodation of the aged
and infirm.

London County Council's New Cha

At the meeting of the London
Council held on March 16, Mr
Jackson was elected chairman, in
sion to Viscount Peel. In maki
nomination Mr. Gilbert Johnsto
scribed Mr. Jackson as one of t
examples of the best type of
public men. Oxford had probabl
him his affection for education, an
Oxford he passed to the study of
of the people at Toynbee Hall. Aft
he became a member of the School
he was an inspector of the Board
cation, and his services as an edu
adviser were in demand throu
Empire. Major Ernest Gray was
vice-chairman and Mr. P. A.
deputy-chairman.

Homes for Aged Miners: Sea

Twelve homes for aged miners,
at New Seaham, under the auspice
Seaham Miners' Lodge and the
Aged Mineworkers' Homes Ass
were opened last week by Alderm
Wilson, D.C.L., M.P. Each cott
tains a bedroom 14 ft. by 14 ft., and
room 14 ft. by 13 ft. 6 in., together
entrance hall, scullery, pantry, etc.
is a small ornamental garden at t
of each house, and a large kitchen
at the rear. The homes are of on
faced with red bricks and covered
tiles, and each has a bay wind
covered verandah in front. The
mate cost—for erection only—i
£2,100. The site was given by
Lord Londonderry, who also gave
tion, and the bricks were provide
duced cost by the Londonderry C
Limited. Councillor J. W. Claxt
M.S.A., of the Londonderry Offi
ham Harbour, was the archit
Messrs. John Clark and Son, New
the contractors.

Dundee's New Hospital.

Dundee Women's Hospital and
Home, at Balgay, which was op
week, provides accommodation fo
patients and staff. It has been
as a two-storey building, the admi
portion being on the ground floor
wards, etc., on the first floor. Th
pal entrance is at the south-eas
from which a wide corridor runs t
length of the building, giving acc
staff sitting-rooms and bedrooms
south and west fronts, the bath bl
placed centrally on the north si
corridor. The kitchen premi
placed at the north-east corner,
laundry and washhouse ha
arranged to the north of the ba
The patients' bath block is placed
to the north of the main corridor
mediately over the ground flo
rooms, the fire-escape stair enter
this block, while the north-west
the building has been allocated fo
gery, anæsthetic room, sterilisi
and operating theatre. The bu
heated throughout on the low-pre
water system. The buildings
signed by Mr. James Findlay,
Dundee.

ARCHITECTS ON WAR SERVICE.

sh this week the concluding portion of the list of members of the architectural profession who have joined the various
of the Imperial Forces for the purposes of the War. The list, which includes members of the Royal Institute of British
, of its nineteen allied provincial Societies, of the Architectural Association, and of the Society of Architects, and Students of
us Schools of Architecture recognised by the Royal Institute, contains altogether some 1,200 names, and the number is being increased every day.

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wart, 9th Royal Scots (Pte.).
T.
. M., R.E.
., Jr.
E. R., 8th Bn. Roy. Irish Rifles (2nd

)onald, Seaforth Highlanders.
I.
R., 1st S. Midland Bde. Mounted F.A.
C. F., R.A.M.C. (Driver).
e, H. J. F., Empire Bn. Royal Fusi-
Pte.).
., 12th Co. of London Regt.
iezer, 8th Royal Scots (Pte.).
E., 12th Bn. Sherwood Foresters.
, Pub. Schls. and Univ. Bn. Roy. Fus.
umure, Royal Scots.
H. A., Sheffield Bn. York and Lancs.

Bertram, 3rd W. Lancs. Bde. R.F.A.

, 7th Bn. W. Yorks Regt. (Lt.-Col.).
iney D., Yorks Hussars (Lieut.).
E., O.T.C.
imes E., 5th Bn. York and Lancs.
Major).
E. V., 13th Co. of London Regt.
J., South African Artillery.
R., Hants Yeomanry.
rg, F. L., 1st W.R. Field Ambulance

rge, R.E.
W., 6th A. and S. Hrs. (Capt.).
J., R.E.
Arthur, Lancs Hussars Yeomanry.
Cecil, H.A.C.
Herbert, R.E.
A.M.C.
E. C., 5th S. Staffs Terr. Reserve Bn.
rlando, 3rd Hussars (King's Own
l.).
an, 6th Scottish Rifles (Lieut.).
, Northumberland Fus. (Lieut.).
Boyd, London Scottish.
E., R.A.M.C. (Staff. Sgt.).
A., 5th City Bn. Manchester Regt.
V.
J., R.C. Motor Cyclists (Corpl.).
, F. H., R.A.M.C. (T.) (Pte.)
., O.T.C.
dfrey H, R.N.V.R. Anti-Aircraft.
E., Northumbrian Divn. R.E.
., 5th Devonshire Regt. (Capt.).
L., 5th Glosters (Pte.).
C. M., Uganda Volunteer Coy.
R.F.A.
7th West Yorks (Pte.).
J., R.E.
D., R.N.V.R. Anti-Aircraft.
W., Fife and Forfar Yeomanry.
ld M., Public Schools Corps (Pte.).
., 1st Monmouth Regt. (Pte.).
A. Bligh, 5th South Wales Bor-
Lieut.).
hadwick, Univ. and Public Schools

I., Univ. and Public Schools Bn.
R., 24th Bt. London Regt. (Sec.-

., O.T.C.
W. G., 2nd Birmingham Bn. Roy.
ss.
B., 12th Co. of London (Pte.).
T. H., H.A.C.
rles E., 9th Bn. Roy. West Kent
ieut.).
rnold, R.A.
ir, Scottish Horse.
R.N.V.R.
. R.F.A.
, 3rd Home Counties' Field Ambu-
te.).
., Public Schls. and Univ. Bn. Roy.

E., Northumberland A.S.C.
th Bn. Black Watch.
. O.T.C.
., R.F.A. (Capt.).
. Ambulance Corps (2nd Lieut.).
ottish Horse.
7th London Bde. R.F.A. (Gunner).
, R.N.V.R. Anti-Aircraft.
J. T., 4th E. Anglian R.F.A. (2nd

W. Kingsley, Roy. W. Kent (T.).
J., 4th Camerons.
G. G., City of London I.Y.
Robt. (Lieut.).
I., Artists' Rifles.
. M., 14th Co. of London (Piper).
R.N.V.R. Anti-Aircraft.
. Norman, 9th Bn. H.L.I
A., Black Watch.
A. G. R., London Scottish.
G., Seaforth Highlanders (2nd

Mackenzie, H. M., A.S.C.
Mackinnon, W.
McKinlay, Edw., 9th Bn. H.L.I.
McLachlan, C., 12th C. of L. (Rangers) (Pte.).
MacLaren, W., 7th Bn. Royal Dublin Fusiliers.
McMillan, D. S., 4th Gordons.
Macnoughton, Alan G., 9th Bn. H L I. (Lieut.).
Maddock, R. H., Artists' Rifles.
Maddox, H. T. F., Welsh Fus. (Lieut.).
Maitland, A. G., 3rd Bn. Scottish Rifles (Lieut.).
Manlove, J. E., 6th Bn. K.O. Roy. Lancaster Regt. (2nd Lieut.).
Mann, E. E., Royal Garrison Artillery.
March, J. E., Civil Service Rifles (T.) (Pte.).
Marks, C. G., 12th Co. of London (Rifleman).
Marley, W. H., R.F.A. (Gunner.)
Marchant, O., Yeomanry.
Marshall, S. J., Yeomanry.
Marshall, Univ. and Public Schls. Bde.
Martin, J. G., R.E.
Martin, T. A., London Scottish.
Martyn, Lawrence D., R.A.M. C.
Masey, Cecil, 2nd London Bde. R.F.A.
Mason, H. C., 5th Bn. E. Surrey Regt. (Pte.).
Masters, W. A. H.
Mathews, H. E., 4th Bn. R. Sussex Regt.
Mathews, J. B., R.E.
Matthews, B. F., Royal Artillery (2nd Lieut.).
Matthews, Bernard T., 1st Wessex Bde. R.F.A.
Matthews, H. E., 5th Bn. Sherwood Foresters.
Mauchlen, R., Durham L.I. (2nd Lieut.).
Maufe, E. Brantwood, R.N.V.R.
Maule, H. P. G., H.A.C. (Coy. Sergt.-Major).
Maxwell, A. E., R.E.
May, T. W. V., 5th C of L. Rifles .
Mayell, R. Y., R.E.
May, W. H., R.N.V.R.
Meager, K S., A.S.C.
Mee, C. Edward, Surrey Yeomanry.
Meakin, F., Sheffield Bn. York and Lancs. Regt.
Meek, George Tech. Coll. Co. H.L.I.
Meikle, J. H., Univ. and Public Schls. Corps.
Meikleham, D. L.
Melhuish, J. B.
Mercer, C. W., 4th Welsh Engineers (Lce.-Corpl.).
Meston, F. W., 4th Gordons.
Melburn, Stanley W., Northumberland Hussars (Y.).
Milburn, William jun. 3rd Northumbrian Bde. R.F.A.
Millen, D., Surrey Yeomanry.
Millen, Jas., 9th H.L.I.
Miller, B. A., 1st W. Lancs R.A.M.C. (Pte.).
Miller, Jas., 9th H.L.I.
Miller, Taliesin, R.A.M.C. (Pte.).
Miller, Lockhart F., 2nd Dragoons (Pte.).
Miller, S. R., 13th Bn. Co. of London Regt.
Milliken, R. C., London Elec. Eng. Co. (Sgt.-Major).
Mills, H. E., Civil Service Rifles.
Mills, H. G. H., 23rd Co. of London (Pte.).
Milne, David S., Scottish Horse.
Milne, O. P., A.S.C. (2nd Lieut.).
Minchin, W. C., 4th Seaforth Hrs. (Pte.).
Minnis, Arnold, W. Riding Div. R.E. (Sapper).
Miscampbell, Alexander, A.S.C.
Mitchell, C. H., 8th Bn. R. Irish Fusiliers (Lieut.).
Moberley, A. H., 1st Surrey Rifles (T) (Capt.).
Moffat, H. McL., Pals' Bn. (Lce.-Corpl.).
Mollison, W. A.
Moore, E. L., R.N. Div. Univ. and Pub. Schools Bn.
Moore, H. E.,, R. Monmouth R.E. (Lieut.).
Mootham, Delme G., 4th Bn. Royal Fus.
Morgan, E. E., Glamorgan Yeomanry (Trooper).
Morgan, G., 5th Welsh Regt. (Pte.).
Morrey, Percy.
Morris, —, Roy. Welsh Fus. (Pte.).
Morter, S. P., 4th W. Lancs How. Bde. R.F.A. (Major).
Moscrop, W. N. J., Durham L.I. (2nd Lieut.).
Mountford, E. W.
Muddell, A. R., 2nd P.S. Bn. Royal Fusiliers (Pte.).
Mullins, G. T., Artists' Rifles.
Munro, Wm., R.H.A.
Murchison, Malcolm.
Murgatroyd, J. L., R. Anglesey R.E. (2nd Lieut.).
Murray, J. G. W., 4th Gordons.
Murrell, H. F., Artists' Rifles.
Myers, John, East African Mounted Rifles.

Neighbour, S. W., Artists' Rifles (Capt.).
Newbury, J., 7th Bn. Roy. Fus.
Newton, Francis, 2nd Div. of Cav. and Art. (Staff)
Newton, F. G., Artists' Rifles.
Newton, W. G., Artists' Rifles (2nd Lieut.).
Newton-Moss, V., Artists' Rifles.
Nicholl, A. D., 5th Seaforth Hrs. (Pte.).
Nicholls, C. E., O.T.C.
Nicholls, F., O.T.C.
Nicholson, A. I., 4th Border Regt.
Nightingale, F. B., Artists' Rifles.
Nimmo, W. Wilson, Artists' Rifles.
Norris, C., 7th Royal Fusiliers.
Norris, Leslie A., 7th Royal Fusiliers.
Norris, R., 7th Royal Fusiliers.
Norquoy, James, 11th Bn. Middlesex Regt. (Lieut.).
Norton, J. A.
Norton, J. S., 9th Royal Scots (Pte.).
Notley, A. C., Artists' Rifles.

Oakes, Rycroft, Queen's Westminster Rifles.
Odell, J. F., R.N.V.R.
Odom, J. H., Derbyshire Yeomanry.
O'Donoghue, R. J., H.A.C.
Ogden, F. C., R.E. (Sapper).
Oglesby, R. P., R.E. (Hon. Lieut.).
O'Hara, J., R.E.
Oliver, W. G., 6th Cameron Hrs.
Orchard, Alfred, A.S.C. (Pte.).
Page, B. Culmer, 2nd London R.E. (Capt.).
Page, G. M., S. Notts Hussars.
Page, H. B., Fife and Forfar Yeomanry.
Page, James, Territorials (Lieut.).
Palmer, T. R. L., Public Sch. and Univ. Corps. (Lieut.).
Palmer-Jones, W. J., R.N.V.R. Anti-Aircraft.
Parker, E. J. C., R.E. (Sapper).
Parker, T. L.
Parkin, W. G., King's Colonial Infantry.
Parsons, E. C., R.E.
Parsons, H. R., 5th Bn. R. Warwicks.
Paterson, A. H. S. (Lieut.).
Paterson, Claude, Roy. Hants Regt. (Pte.).
Patrick, W. M., R.E.
Paxton, James, R.N.V.R. Anti-Aircraft (C.P.O.).
Payne, C. G. C., Artists' Rifles.
Payne, Wyatt L. H., 6th Seaforth Highlanders.
Peace, T. S. jun., R.G.A. (T.) (Capt.).
Pearson, L. G., R.A.M.C.
Pechell, M. G., H.A.C.
Peele, R. de C., 4th Dorset Regt. (Lieut.).
Petch, E. S., 4th Royal Scots (Pte.).
Philip, Adam, Scottish Horse.
Phillips, A. M., 8th K.O.Y.L.I. (Capt.).
Phillips, L. A., Univ. and Public Schl. Bn. R. Fus.
Philp, R. M. H., King Edward's Horse.
Pickles, 6th W. Yorks (Pte.).
Pickmere, Travers, Univ. and Public Schl. Bn.
Pigott, R. M., R.E.
Pike, C. W., Artists' Rifles (Lieut.).
Pite, Ion Beresford, R.E. (Lieut.).
Pitte, R. W., R.E.
Pool, S., R.E
Pope, A., Mounted Infantry.
Potter, C. H., 6th Bn. Lancs Fusiliers.
Portsmouth, O. S., 1st Welsh Bde. Howr. R.F (T.) (Lieut.).
Potts, Robert W., 9th Royal Scots (Pte.).
Powell, H. C., R.N.V.R. Anti-Aircraft.
Powell, F. H. N., Hants Carabineer Yeomanry (Regtl. Scout).
Powell, L., Artists' Rifles (Pte.). .
Pratt, Edwin L., 5th A. and S. Hrs.
Pratt, N. H., Sherwood Foresters (2nd Lieut.).
Preston, E. C., Public School Bn. Mdlsx. Regt. (Pte.).
Price, H. W., 4th Manchester (2nd Lieut.).
Probert, J. M., 1st Bn. Monmouthshire Regt. (Pte.).
Prynne, H. Fellowes, Westminster Dragoons.
Pullin, H. C., Rifle Bde.
Punter, P. A., 7th Hussars (Pte.).

Quarter, A., Scots Greys.
Quick, Norman D., 7th Welsh (Cyclists) (Pte.).
Quirke, W. Dathy, 5th City of London Regt.

Rahbula, Ernest A. R., 1st C. of L. Yeomanry.
Ramsay, D., Forfar Highland Cyclists Bn.
Randall, W. E. R., jun., A.S.C. (Lieut.).
Ratcliff, Fred, Sheffield Bn. Yorks and Lancs Regt.
Ravenscroft, M., 3rd W. Lancs R.F.A. (Lieut.).
Reavell, George, jun., 7th Bn. Northumberland Fus. (Major).
Reckett, F. N., 9th Bn. Mdlsx. Regt. (Capt.).
Rees, J. E. R.E. (Lce.-Cpl.).
Reeves, A. Seymour, 2nd London R.A.M.C.
Reid, A. W. (Lieut).
Reid, J. W. R., R.G.A. (2nd Lieut.).
Revitt, George, Northants Yeomanry (Trooper).
Reynolds, Ernest, R.F.A. (Gunner).
Rhind, T. Duncan, 5th Royal Scots (Major).
Rhodes, T. H., R.N.V.R. Anti-Aircraft.
Richardson, H. T., 4th King's Shropshire L.I. (T) (Pte.).
Richardson, John E., H.A.C.
Rickeard, C. R., R.G.A. (Lieut.).
Ridley, B. W., 7th Bn. S. Lancs Regt. (2nd Lieut.).
Rigby, Chas.
Ripley, C. Gurney, A.S.C.
Rix, A. D., 3rd Norfolks.
Robb, Edgar A. G.
Roberts, E. C., R.A.M.C. (Pte.).
Roberts, H. O., R.A.M.C.
Roberts, J. B., Sheffield Bn. York and Lancs Regt. (Pte.).
Roberts, W. J., R.N.V.R. Anti-Aircraft.

Roberts, R. G., Sheffield Bn. York and Lancs Regt. (Pte.).
Robertson, A. W., Essex Garr. Art. (Capt.).
Robertson, G. H. K., Royal Scots.
Robertson, John S., H.L.I.
Robertson, R., London Scots.
Robinson A. D., Univ. and Public Schools Corps.
Robinson, J. C., Artists' Rifles.
Robinson J. McC., R.E.
Robinson, N. F., Artists' Rifles.
Roche, C. S.
Rodger, Robt. C., Bute Mountain Art.
Roe, G. A. M., 5th East Surrey Regt. (Capt.).
Roger, Robt. G., Bute Mountain Art.
Rogers, Cecil W., Artists' Rifles.
Rogers, W. H., R.N. Air Service.
Rogers, W. J., 1st Bn. Monmouth Regt (T) (Pte.).
Rogerson, John, R.G.A. (Major).
Roland, Lawrence, Highland Cyclists' Bn.
Rolley, H. E., R.N.V.R. Anti-Aircraft.
Rose, Charles H., 9th C. of L. (T).
Ross, T. A., Cromarty Garr. Art. (Lieut.).
Ross, W. A., R.N.V.R. Anti-Aircraft Corps.
Rowse, Anthony, R.F.A.
Rowe, G. F., London Rifle Bde.
Rowlinson, M., 28th Co. of London (Pte.).
Rowntree, C., 1st Anglo-Belgian Field Ambulance.
Royds, A. F., Artists' Rifles (Capt.).
Rubery, T., Univ. and Public Schools Bn.
Rudd, J., Yeomanry.
Rudman, Walter, 4th Public Schools Bn. Roy. Fus.
Rushworth, T. S., 7th Co. of L. Bn. (Lieut.).
Russell, A. H., 15th Co. of London (Pte.).
Russell, A. L. K., Public School Bn. Middlesex Regt.
Russell, J. A., O.T.C.
Rutledge, Jas. C., 7th Reserve Batty. R.F.A. (Pte.).
Ryan, H. H., H.A.C.
Rylatt, A., 5th Bn. Notts and Derby Regt.
Rymill, H. J., 4th Bn. Northants Regt. (Pte.).

St. John, Richard, 9th Bn. H.L.I.
St. Leger, C. D., R.A.M.C.
Salter, W. E., Roy. Welsh Fus. (Pte.).
Sample, E. F. R., Yorkshire Hussars.
Saunders, Bernard, 6th Bn. R. Warwicks
Saunders, J. T., London Scottish.
Savage, O. F., London Scottish (Pte.).
Saxon, F. C.
Sayers, A. D.
Schofield, Edgar.
Schofield, J. F., Motor Cyclist Corps R.E.
Schumann, C. L. G., 7th Middlesex Regt.
Scotland, Geo. B.
Scott, A., R.G.A. (Lieut.).
Scott, A. Gilbert, Royal Anglesey R.E. (Lieut).
Scott, B. W. H., 1st Surrey Rifles.
Scott, J. Mailler, Forth R.G.A. (C.Q.M.S.).
Scott, J. Maxwell.
Scott, T., Fife and Forfar Yeomanry.
Scott, Theo. G., British Red Cross Society, France.
Scott, W. P., 1st City of Glasgow H.L.I.
Scott-Moncrieff, W. W., R.E.
Scott-Willey, H. H., R.N. Air Service
Seaborne, E. S., 1st Monmouth Terr. (L.-Corpl.).
Searle, Sydney, R.N.V.R. (Lieut.).
Seppelt, J. G., R.A.M.C.
Sergent, R. N., R.E.
Seward, H. J., R.E.
Sharpe, E., Artists' Rifles.
Shaw, A. Barry, Sheffield Bn. York and Lancaster Rgt. (Pte.).
Shears, Reg., 9th Bn. Queen Victoria Rifles.
Shenstone, G., 7th Essex Regt. (Capt.).
Sheppard, Thos., 2nd Bn. Warwick Regt. (2nd Lieut.).
Sheret, A. S., Scottish Horse.
Sherwin, Cecil I., R.A.M.C. (Pte.).
Shibley, A. R., 10th Bn. D.C.O. Middlesex Regt.
Shippard, A. C., W. Army Corps (Despatch Rider).
Shipway, G. F., 28th Co. of London (Pte.).
Shuffrey, G., Artists' Rifles.
Silcock, A., Artists' Rifles.
Sinclair, W. B., 7th Bn. C. of L. Regt.
Skinner, T. A., 6th Gloucesters.
Skipwith, F. P., 7th Bn. R. Scots Fusiliers (Capt.).
Slack, H. B., Sheffield Bn. York and Lancs Regt. (Pte.).
Small, Alexander, Royal Irish Rifles.
Small, Robt. A.
Smellie, Alex., Army Service Corps
Smith, A. D., R.E.
Smith, C. Bouton, King Edward's Horse.
Smith, Edwin, R.N. Div. Engineering Unit.
Smith, E. Kennedy, Artists' Rifles.
Smith, G. T., H.A.C.
Smith, R. R. Tate, Mechanical Transport Corps.
Smith, Wm. J.
Smithers, Alec., H.A.C. (Corpl.).
Snell, A.
Somerset, J. H., Artists' Rifles.
Soulby, A. C.
Southcombe, J. C., 6th Devons (T.) (Capt.).
Southorn, T. M., R.G.A.
Spain, J., 7th Bn. Durham L.I.
Spence, A. T.
Spencer-Smith, G. O., The Queen's Westminster Rifles.
Spicer, W. H., Warwickshire Yeomanry (Trooper).
Spooner, T. P., C. of L. Field Ambulance.
Spratt, C. Norman, R. Flying Corps.
Stafford, J. E., Durham L.I.
Stallwood, H. A., Singapore R.E. Volunteers.
Staniforth, G. L., Sheffield Bn. York and Lancaster Regt. (Pte.).
Stanley, Gerald, 4th Bn. Wilts Regt. (Lieut.).
Stark, David.
Stebbing, P.
Stedman, W. B., R.A.M.C., (Sergt.).
Steer, W., Artists' Rifles.
Stephens, W. L., R.N.D. Engineer Unit.
Stevens, R. G., Royal West Kent Regt. (Pte.).
Stewart, Alex. D., 3rd Lowland Field Ambulance (Pte.).
Stock, C. H.
Stoddart, R. W., R.E.
Story, P. F., 9th Bn. R. West Surrey Regt. Capt.).
Strachan, J., R.A.M.C.
Stransom, W. R., 15th Co. of London (Pte.).
Stroud, A. W., R.N. Air Service (Chief P.O.).
Sturgeon, R.V., 2nd Manchester Regt.
Sullivan, B. M., Punjab Light Horse.
Sutherland-Graeme, A. V., London Scottish.
Sutherland, W. W., Field Engineers.
Sulton, B. H., Univ. and Public Schools Corps.
Sutton, W. A., R.E. (Sapper).
Swindells, F. H., R.E.
Symington, H. A., 4th Bn. Leicester Regt. (Pte.).
Sykes, A. R., 14th Bn. King's L'pool Regt. (Lieut.).

Tanner, E. J., Artists' Rifles.
Tanner, N. B., R.E.
Tanner, S., R.E.
Tanner, Stanley T., Public Schools Corps (Pte.).
Tapper, M. J., Artists' Rifles (2nd Lieut.).
Tasker, A. K., Tyne Elec. Eng. (Capt.).
Tasker, R., Artists' Rifles.
Tasker, W. W., Northumberland R.E.
Tate, J. D., 22nd Bn. C. of L. Regt. (Lieut.).
Tattersall, S.E.V., 3rd London Inf. Bde. (Adjutant).
Taylor, H. S., 13th Bn. Co. of London Regt.
Taylor, R. H, R.A.M.C.
Taylor, R. M., 9th Co. of Mdlsx (Lieut.).
Taylor, W., West Riding Div. R.E. (Sapper).
Teasdale, J .B., P.S. and U. Bn. Roy. Fusiliers.
Tedcastle, J. G.
Temple, T.
Terrace, T., Fife and Forfar Yeomanry.
Terrell, W. E. W., R.A.M.C.
Thomas, Sir A. Brumwell, A.S.C. (Lieut.).
Thomas, A. P., Glamorgan Yeomanry (Trooper).
Thomas, H., R.F.A. (Sergeant).
Thomas, Hugh, Royal Flying Corps (Lieut.).
Thomas, L. W., Welsh Divn. Signal Corps. (Corpl.).
Thomerson, H. A., 13th Bn. Royal Fusiliers.
Thompson, A. J., 28th Bn. Co. of London Regt.
Thompson, W. H., H.A.C.
Thomson, D., R.N.V.R. Anti-Aircraft (C.P.O.).
Thomson, D., 5th H.L.I.
Thomson, D. T.
Thomson, F E., 2nd B'gham Bn. R. Warwicks.
Thomson, J. S., 14th C. of L. (London Scottish).
Thoresby-Cooksey, H., R.G.A.
Thorne, H., 6th Devons (T.) (Pte.).
Thornton, F., Yorks L.I.
Thurston, S. W., R.E.
Todd, A. J. K., 2nd Dragoon Guards (Lieut.).
Todd, W. H., 6th H.L.I.
Toothill, J. C. P., Artists' Rifles.
Topham, G. R., Artists' Rifles.
Townley, E .T., R. Welsh Fusiliers (Pte.).
Toy, Leonard, 18th Hussars (Trooper).
Travers, Wilfrid, 11th Bn. Cheshire Regt. (2nd Lieut.).
Traylor, W. M., S. W. Borderers (Pte.).
Trinick, P. J., Eng. Units R. Naval Div.
Tripp, W. M., P.S. and U. Bn. Royal Fusiliers.
Trent, W. E., H.A.C.
Troup, F. Gordon, 10th Co. of London Regt. (Lieut.).
Trouton, E. A., 3rd Bn. Inniskilling Fusiliers (2nd Lieut.).
Truelove, J. Reginald, Queen's 24th Co. of London (Lieut.).
Tunnard, H. B., 105th Infantry Bde. (Q.M.S.).
Turner, T. E., City of London Regt. (Lieut.).
Turrill, V. E., 13th Bn. Royal Fusiliers (Lieut.).

Unwin, E., Australian Medical Service.

Venn, G. O., Roy. Fus. Public School Bn.
Vergetti, R. E., Glamorgan Yeomanry (Trooper).
Vincent, P. J. Newby, Hants Yeomanry (2nd Lieut.).

Waddington, Harold G., Duke of Lancaster's Own Yeomanry (Lce.-Corpl.).
Walch, J. B. M., Artists' Rifles.
Walker, D. H., 5th Bn. P. of Wales' Own Yorks Regt. (Lieut.).
Walter, R. A., 12th Bn. Mdlsx. Regt.
Walker, E. Holdsworth, 5th K.O.Y.L.I. (T.) (Capt.).
Walker, J. W., Deeside Bn. Gordon Hrs.
Walker, R., Artists' Rifles (Sergt.).
Walker, Wm., Highland Cyclist Bn. (Lieut.).
Wallace, C., Yorks Hussars (Trooper).
Wallace, Jas., 6th Scottish Rifles.
Waller, W. E., Northern Cyclists.
Walsh, J. B. M., Artists' Rifles.
Walter, R. A., Mdlsx. Public Schools Bn.
Ward, Charles, R.E. (Sapper).
Ward, J. W.. Sportsman's Bt. Royal Fus.
Ward, W. Henry, 10th Bn. W. Yorks Regt. (Lieut.).
Warnham-Tickle, A. S., Machine Gun Section, Hong Kong Vol.
Warren, H. G., R.N.V.R. Anti-Aircraft.
Waterhouse, M. T., Sherwood Rangers Yeomanry (2nd Lieut.).
Watling, W. Grant, Lothian and Border Horse (Pte.).
Watson, Bryan, Artists' Rifles.
Watson, H. S., R.E. (Corpl.).
Watson, W. E., 1st C. of London R.F.A
Watt, C., Fife and Forfar Yeomanry.
Watt, G. T., 9th H.L.I.
Watt, Wm. R., 9th H.L.I.
Webb, Maurice E., R.E. (2nd Lieut.).
Webber, W. K., Artists' Rifles.
Webster, H., Sheffield Bn. York and La
Webster, F. C., London Scottish (Serg
Weeks, W. Barrett, R.E. (Lieut.).
Wheeler, Christopher W. F., Sussex
Wheeler, M., 4th Bn. R. Berks (N.R.)
Whimster, H M., R.A.M.C.
Whitbread, G., 6th Bn. Manchester
Whitburn, A. S., Surrey Yeomanry.
White, P. G., 28th Co. of London (P
White, T. F. H., O.T.C.
Whitehead, H. M.
Whitehouse, L., 2nd City Bn. Liverp
Whitney, E. S., 11th Co. of London
Whittaker, F. B., 6th Gloucesters (P
Whittington, H. M., 6th London B (Gunner).
Wigglesworth, F. J., Sheffield Bn. Lancs Regt. (Pte.).
Wilkie, W. F., 4th V.B. R.H. (Lieut.)
Wilkins, C. W., R.E. (Sapper).
Wilkinson, A. W., 9th D.L.I.
Wilkinson, Leslie, O.T.C. (2nd Lieut
Wilkinson, W. G., 3rd London Yeom
Williams, Edw., A.S. Corps (Pte.).
Williams, G. A., O.T.C.
Williams, G. R., 4th Welsh R.F.A. (C
Williams, R. J., 1st Welsh R.F.A. (
Williams, W. J. V., R.E.
Williams, W., Cheshire Yeomanry (
Williamson, F., H.M.S. "Gibraltar."
Williamson, Robt., Black Watch.
Wills, G. Berkeley, O.T.C.
Wills, Trenwith L., Mdlsx. Hussars.
Wilsdon, P. T., R.E.
Wilson, A. Needham, 6th Essex Regt
Wilson, Allen W., 6th Bn. Northants
Wilson, Cecil Locke, 7th Welsh (Lt.-Col.).
Wilson, Geoffrey C., R.G.A.
Wilson, J., Artists' Rifles.
Wilson, W. D., Engineer Fortress C
Winch, A., Leeds City Bn. (Pte.).
Winder, F. A., R.G.A.
Wingate, Alex., 9th Bn. H.L.I. (Lce.
Winder, Richard.
Windsor, Frank, R.E.
Winser, B. C., Infantry (2nd Lieut.).
Wire, L. T., 11th Bn. Hants Regt. (I
Wood, H., Univ. and Public School
Woodhouse, C. H.
Woodroffe, N. F., Queen Victoria Rif
Woods, Frank, Royal Engineers.
Woodside, D. C., 5th Scottish Rifles.
Worthington, J. Hubert, 1st City chester Regt. (Lieut.).
Wyld, R. S. B., Royal Naval Air Se
Wylie, Edward G.
Wyllie, R. T. M., London Scottish.
Wyllie, W. Barnet, Forth R.G.A. (

RECRUITING FOR THE

We have much pleasure in givi
to the following letter from Mr. A
the indefatigable "Chief Recruit
A.A.: Dear Sirs,—I hope you will
me space in your columns to c
with your readers on the subject
the Forces of the Crown.

The Volunteers are being organis
who cannot join the Regulars and
and although they occupy the last
military scheme, they can give rea
the Government. Every man who
War Office conditions with rega
corps thereby expresses his enti
Lord Kitchener, and shows that he
the relative value of part time t
full time service.

The headquarters of Architect
Training Corps has now been ma
Enrolment Office for the Army, an
ing its work of recruiting for
Engineers and Sanitary Compan
which services are still in need
In addition to all kinds of skill
draughtsmen and surveyors can
for the former, and men of sanita
are in demand for the latter.

The Corps which has now bec
Battalion (Architects) Central L
ment of Volunteers can offer ex
ties for the men who are above mi
who cannot at present join the A

The training centres are at St.
Westminster and Holborn in addi
wich College, Loughton and Bor
where there are splendid are
exercises and manœuvring.

A School of Arms has been
Erasmus Street, Millbank, and t
to all members who have becom
drill and musketry.

ALA

Chief Recruiter, 4th Batt. C.L.
18, Tufton Street, S.W.

A Correction.

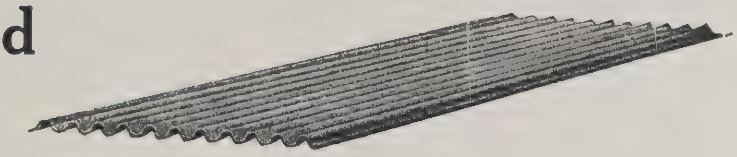
With respect to the portion of
lished last week, Mr. E. R. Hudso
following correction. Two of
should read: Hudson, E. R., Nati
(N.C.O.); Hudson, P. S., Royal E
2nd Lieutenant.

No Increase in Price owing to War.

ASBESTOS-CEMENT

orrugated Sheets,

Flat Sheets & Slates.



Prompt Delivery Ex London Stock.
Suitable for covering all forms of Roofs and Sides of Buildings

Original and Best.

Manufactured at La Chine, Montreal, Canada.

r prices and particulars apply to—

(South of England and Ireland)
HE ASBESTOS MANUFACTURES CO., LTD.,
654, Caxton House,
Westminster,
London, S.W.

(North of England, Scotland, and Wales)
THOMPSON & HUGHES-JONES,
20, Budge Row,
Cannon St., London, E.C.,
OR THEIR AGENTS.

Support the Colonies who support us.

ARRON ELECTRIC HEATING APPLIANCES

A TOUCH OF THE SWITCH DOES IT.

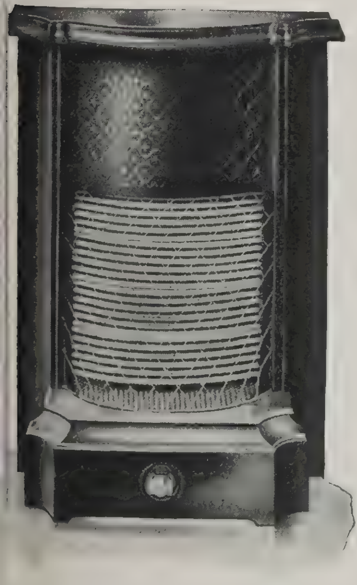
By Appointment Ironfounders to H.M. the King.

CARRON Electric Heating Appliances can with confidence be recommended as efficient and reliable heating agents, ensuring complete immunity from smoke, smell, dirt, ash, and fumes, thus making for healthier homes and cleaner furnishings.

They are thoughtfully designed and carefully constructed, giving a service in keeping with Carron Company's reputation extending over a century and a half.

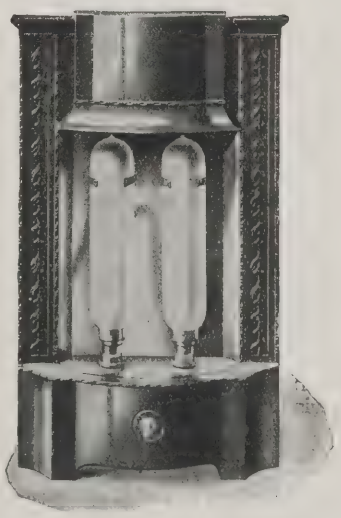
Carron Electric Radiators should receive full consideration when formulating heating schemes.

Carron Company manufacture all kinds of **Electric Heating** and **Cooking Appliances,** including **Fires, Radiators, Hot Closets,** and **Carving Tables, Roasting Ovens, Grills, Bain Marie, Urns, Irons,** etc., for **Hotels, Shops, and Public Institutions, and the Home.**



No. 210. Kilwinning Electric Fire, made in 4 finishes. 3 heat regulation.

Write for No. 16C Electric Folder—which illustrates many patterns of Electric Fires, Stoves and Radiators—free on application.



No. 36. Lamp Radiator with ornamental cast-iron frame. Size 14 by 22 by 8 ins.

ARRON COMPANY WORKS: CARRON, STIRLINGSHIRE, and PHŒNIX FOUNDRY, SHEFFIELD.

omplete assortment of CARRON manufactures on view at the Company's Showrooms:—LONDON—(City), 15, Upper Thames St., E.C.; (West End) 50, Berners St., Oxford St., W.; LIVERPOOL:—20-30, Redcross St.; MANCHESTER:—24, Brazennose St.; BRISTOL:—6, Victoria St.; BIRMINGHAM:—218, 220, 222, Corporation St.; NEWCASTLE-ON-TYNE:—13, Prudhoe St.; EDINBURGH:—114, George St.; GLASGOW:—125, Buchanan St.; DUBLIN:—44, Grafton St.

TRADE AND CRAFT.

The "Uneeda" Patent Self-Adjusting Casement Stay.

The "Uneeda" self-adjusting casement stay has been already described in these columns in general terms, and the manufacturers now direct special attention to the facility with which this fitting solves troublesome window problems. This stay can be very effectually fitted to French doors opening inwards or outwards, to which type of door, as a rule, no stay is fitted, except, perhaps, in some instances where a cabin hook is used to secure the door when it is fully open. Should the householder desire to have his door partly open, it is left to him to procure the means. As a common result, the door is at the mercy of the wind, often with disastrous consequences. A "Uneeda" casement stay fitted to the top of such a door, as illustrated (Fig. 1) gets rid of all the trouble. Vertical or horizontal swing-lights, particularly when they are large and heavy, require a fitting that will at all times secure them against the wind, and allow of their being opened just ajar or to 90 degrees, or in any intermediate position, and, further, such a fitting should be "fool-proof," so that the operator cannot go wrong with it. The "Uneeda" stay meets these conditions in every respect. Above is an illustration showing an outward-opening stay fitted to a horizontal swing pivoted light (Fig. 2). For metal casements the "Uneeda" stay is made with special fixing plates to suit any section, and can be screwed directly on to the frame, thus obviating the necessity of welding any special lugs or plates on to the casement frame to take the stay. The makers claim that for this service their stay reaches the highest possible degree of efficiency, and they particularly recommend it for inward-opening casements, as, in addition to its other advantages, its construction is such that there is never any undue strain of any one part; consequently, this fitting is not constantly out of working order, either through the screws having been wrenched out or through parts of the stay being broken.

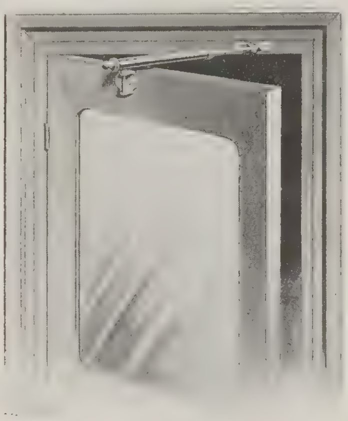


Fig. 1.

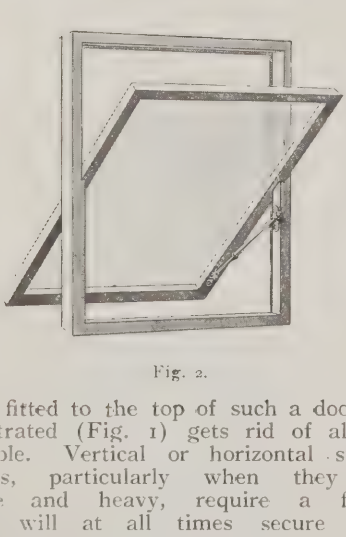


Fig. 2.

"Asphalte and its Uses."

At a moment when asphalte is being extensively used in substitution for materials that the war has rendered scarce and expensive, a book replete with practical information on the various applications of asphalte acquires a new value. Messrs. Salter, Edwards, and Co., Ltd., Hormead Wharf, Hormead Road, W., in preparing this treatise, have availed themselves not only of the forty years' expert experience of the head of their firm, Mr. W. Salter, but also of the professional advice of several architects and quantity surveyors. Twenty examples of the uses of asphalte are given with admirable succinctness. In each example a brief specification and a priced schedule of the items is contained on one page, and on the facing page there is in each instance a drawing in which every detail is made perfectly clear. Many illustrations of important buildings in which this firm have been responsible for the asphalte work are included, among the architects concerned being Sir Aston Webb, Mr. E. L. Lutyens, Professor C. H. Reilly, Messrs. Lanchester and Rickards, Messrs. Mewès and Davis, Mr. E. C. P. Monson, etc., while an abridged list of contracts executed gives further evidence that the firm enjoy the confidence of many other eminent architects. Messrs. Salter, Edwards, and Co., have been also extensively employed by various departments of H.M. Government. Architects will find that this book possesses real practical value.

LIST OF COMPETITIONS OPEN.

MARCH 31.—STREET PLANNING, BRADFORD.—The Corporation of Bradford invite competitive designs for the replanning of streets in the central area of the city. Mr. Reginald Blomfield, R.A., will act as assessor. Particulars (£1 1s., returnable) from Frederick Stevens, Town Clerk, Town Hall, Bradford.

APRIL 21.—HOUSING, WHITEHAVEN.—Corporation invite designs for laying-out site and erection of houses. Author of design placed first to be employed as architect, or otherwise to receive 30 guineas premium; 2nd premium, 20 guineas; 3rd, 10 guineas. Conditions (£2 2s., returnable), The Borough, Surveyor, Town Hall, Whitehaven.

APRIL 30. — GRAMMAR SCHOOL, LEICESTER. — The Corporation invite designs for the new Wyggeston Grammar School for Boys to be erected on a site next Regent Road. Competition limited to architects practising in Leicester. Premiums, £100, £70, and £50. Assessor, Mr. George H. Widdows, F.R.I.B.A.

MAY 31.—LAYING-OUT GROUNDS OF UNIVERSITY OF WESTERN AUSTRALIA.—Designs are invited for the laying-out of the grounds at Crawley, Perth, Western Australia. Premiums, 1st, 100 guineas; 2nd, 25 guineas. Drawings must reach the Registrar, University of Perth, not later than May 31. Documents relating to the competition may be seen at the offices of the Agent-General for Western Australia, Savoy House, Strand, W.C.

NO DATE. — BROMBOROUGH ESTATE, CHESHIRE.—Architects in practice are invited to submit designs for: (1) groups of five cottages to cost not more than £1,000 per group, and (2) groups of seven to cost not more than £1,400. Nine p
each at the rate of 2½ per cent
competitor's estimate on the co
design for a group, which is not
the cost named. Mr. Geoffre
F.R.I.B.A., is assessor. C
from "The Architect," Messr
Brothers, Ltd., Port Sunlight, Ch

NO DATE. — MUNICIPAL B
STEPNEY.—Stepney Borough Cour
designs for proposed municipal
Conditions, G. W. Clarke, Tow
Municipal Offices, 15, Great Ali
Whitechapel, E.

NO DATE.—SMALL HOSPITAL,
HAVEN.—Galemire Joint Hospit
mittee invite designs for a small
Conditions, E. B. Croasdell, Cler
Hall, Whitehaven.

NO DATE. — ADDITIONS,
ASYLUM, GLASGOW.—Additional
dation (for 300 patients) is requ
the Glasgow Parish Council w
architects to submit designs. P
not yet announced.

PROJECTED NEW W

Police Station, Glasgow

It is proposed to erect a ne
station at Baillieston, Glasgow.

Hospital Extension, Croy

It is proposed to enlarge the
Mental Hospital at Warlinghan
beds.

Housing, Hetton, Durha

Hetton Urban Council have d
take immediate steps to erect
dwellings.

Housing Scheme, Canno

Forty-four new houses are to b
by the Cannock Urban District
an estimated cost of £10,675.

Cottage Homes, Darwen

The trustees of the Lightbown
Darwen, have acquired land in th
hurst district and are inviting co
plans for the erection of cottage

Hospital, Ayr.

Plans have been passed by
Dean of Guild Court for the ere
tuberculosis hospital at Hunter
Ayr, for the Ayr Town Council.

Central Library, Ilford

Ilford Urban District Cou
decided, subject to the usual sa
proceed with the erection of
library on a site in Oakfield Ro
rear of the Town Hall, at an
cost of £6,000.

New City Hall, Dublin

Mr. Thompson, the Dun
Engineer, has prepared a gro
scheme for the laying out of the
Hall and other municipal buildi
Greenmarket area, the whole ex
involved amounting to £370,
new buildings are to consist of a
and public offices on the south s
square, shops and business offic
east and west sides, and a publ
in the centre, under the lev
square. The working plans sho
accommodation for 3,200 in the

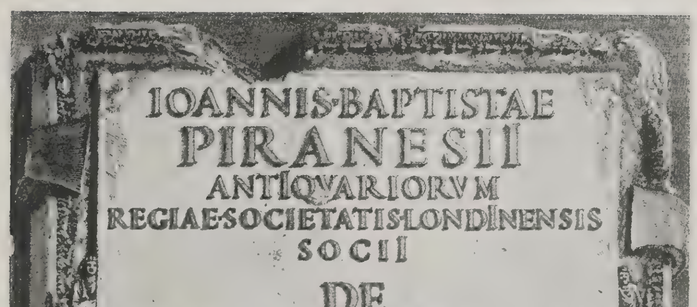
R.I.B.A. Problems in Des

The designs submitted
Subject XIX. have been on vi
galleries of the R.I.B.A. on Mar
23, between the hours of 10
8 p.m., and the exhibition clos
March 24.

THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, March 31, 1915. Volume XLI. No. 1056.

No. 129.



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

MARCH 31, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 10

EDITORIAL.

AT last the cheap-cottage problem has been solved. Ditherington has done it. In a local paper we read: "The Ditherington scheme has proved a success, and at a cost of about £1,200 sixty-three houses have been built." This easily beats the record, the price per house, according to these figures, being rather more than £19. It is a pity that data are not available for working it out at per foot cube; but probably it would come to something like three farthings, thus easily beating the fictitious rate of one penny which the Advisory Committee of the Board of Agriculture and Fisheries so obligingly set forth as a basis for further calculation in their recently issued Circular on "Cottages for Rural Districts." As fifty-seven of these houses are let at four-and-sixpence a week, it is clear that Shrewsbury Town Council have struck a gold mine at Ditherington; unless, indeed, "those printers have been at it again."

* * * *

That Board of Agriculture Circular is causing a good deal of just indignation among architects. Issued at a moment of unparalleled dearth of practice, the circular may easily worsen the architect's sufficiently hard case, by advertising the means of eliminating him. For the circular amounts to little more than an advertisement of the committee's report, which may be had from Messrs. So-and-so, at such and such a price, and a notification that "the designs from which the illustrations in the Report are reduced are published separately on the scale of one-quarter of an inch to the foot. The price of each sheet is 1s. (post free 1s. 1d.), and the drawings may be obtained in the same manner as the Report itself." The specification shall cost you one penny. Most businesslike, but most damaging to the professional interests of the architect. For this circular is not addressed to architects, but is commended to "the special notice of public bodies, societies, and persons interested in Rural Housing," who, with all these facilities placed so cheaply at their disposal, will, in too many instances, imagine that there is no need to employ an architect. If plans, elevations, and specifications of twenty-three types of cottages can be bought ready-made, "persons interested in Rural Housing" will argue, to pay for further professional advice were mere wanton extravagance. That this is a false and foolish assumption does not matter; the point is that it is being greatly encouraged by a Government Department to the injury of the architect and to the detriment of architecture.

* * * *

To collect from a wide area useful data relating to rural housing is to do a good work, rendering possible study on the comparative method of a problem of admitted difficulty and of considerable national importance. Even the addition of a few illustrations would have been quite legitimate, and perhaps rather helpful and suggestive. Architects would ha
glad of such means of increasing knowledge.
sell working drawings at a shilling a sheet, an
cations at a penny, is to go beyond the bo
reason and fairness. We enter our most
protest against such an abuse of the Depa
functions, and we would urge the R.I.B.A. a
professional bodies to demand immediate ces
this extraordinary traffic, and, failing redress
Departments concerned, to bring the matte
Parliament.

* * * *

Such an incident would have been utterly i
if architects had a recognised legal standing.
what would happen if some over-zealous Go
Department began to sell at cheap rates twe
assorted medical prescriptions. But the pub
is also involved in the present traffic in rea
second-hand, or stockpot designs; for if any
able proportion of the enormous amount of
building of which there is such urgent need
part of the country is to be done without arc
supervision, many important details essential
will certainly be scamped or ignored, a large
age of "persons interested in Rural Housin
notoriously impatient of any item of which,
inexpert minds, the expense is more obvious
utility. Nor is the æsthetic side to be li
missed. Some of these stock designs are q
lent in themselves, as they appear on paper,
is able to conjure up in imagination the kind o
ment appropriate to them; but the layman m
untutored choice from the stock patterns is a
not to pick out for Land's End a cottage
obviously predestined for John o' Groat's.
find Kent cottages springing up in Cumber
Cumberland cottages at loggerheads with
scape in Kent.

* * * *

It is all very well for these Government De
to render available for study by architects a
more or less pleasing designs at cheap rat
they had known where to draw the line th
have been no grave reason for complaint
advertise, not primarily or chiefly among arch
promiscuously—the appeal being addresse
have said, to "persons interested in Rural H
the sale at very cheap rates of working dra
specification, is to belittle, in the purview of
the functions of the architect, and thus to
profession prospectively with even greater s
than is implied in the immediate loss with
rural cottages. We may be quite sure that t
no means the intention, but as, in too many
it will certainly be the effect, there arises a
to enter a vigorous protest against what we c
regarding as an excess of departmental zeal.

ng together the designer and the manufac-
been for more than thirty years an object of
endeavour in this country, and to-day the
seems greater than ever. No doubt there is
uch complete estrangement between art and
as that which inspired the noble rage of
nd made Morris melancholy, but it is never-
ly too certain that a much closer communion
e and desirable. Last week the Board of
ld, at the Goldsmiths' Hall, a very significant
of modern German industrial designs, and a
phlet prepared for that occasion gives one
to think. Take, for example, this extraor-
assage: "A large section of the public is
sympathetic towards original efforts, and
heir demand has been largely met by foreign
ns. An instance of this is that more than half
aper designs issued by wallpaper manufac-
this country are believed to have been de-
road." For this statement, of course, we
sponsibility, and we should be indeed glad of
itative denial. If, however, as we suspect,
o more than a mere modicum of truth in it,
force would yet remain to warrant the con-
at in matters of applied design this country
e much more independent than it is.

* * * *

Board of Trade pamphlet insists, we have
many years the pioneers in most branches of
t, and we have produced individual designers
y without rivals abroad. Yet the field of
al production of all kinds has been largely
hands of the foreigner. Why is this? It
be simply and solely because we have neg-
co-operation of which the foreigner has
d the essential necessity. Our creative artists,
facturers, and our distributors never seem to
enough in touch with each other to ensure
tic and concerted action. It has been a con-
ce of complaint that our schools of design do
ufficient trouble to consult the needs of manu-
and the retort has always been that the
urers do not take sufficient interest in the
whereas in Germany all related interests are
lly linked up, co-ordinated, systematised, and
s solidarity and to the accommodating spirit
they ascertain and meet the require-
the public that the commercial success
Germans is due, rather than to any
skill in design or craftsmanship, in
s well as in inventiveness, they are
nably below our level. That they are more
seizing their opportunities is evident from
lopment of the aniline dye industry after an
an (Perkin) had shown the possibilities, and
r turning to practical account the arts and
vement that was originated by the late Walter
o, with many another inadequately appre-
oneer, must have had many a painful
that "a prophet is not without honour save in
untry." Of those German designs exhibited
dsmiths' Hall it was truly said that "all about
sitor found echoes of Morris and the Beggar-
hers, to mention two originals only of these
erivatives."

* * * *

lution recently adopted by the Manchester
cil called for an enquiry with respect to the
e or otherwise of inviting the services of
nt architects for civic design, "thereby
the City Architect to devote himself to
and supervisory work." It may be recalled,
rejudice to the deliberations of the special
which has been appointed to consider the
at Manchester, that this resolution embodies
that we have consistently taken on the
uestion of official architecture. That point need not now be elaborated. It will be more immediately useful to draw attention to a rather unfortunate phrase which appears in the report of the speech in which the resolution was moved. "There was no reason," the report runs, "why architects should not be asked to compete in the same way as builders were asked to tender." If the councillor really thinks that there is any true parity between these two cases, he shares a serious misconception of which it is desirable on every occasion to disabuse the public mind. For the better information of the laity, it is necessary to insist yet again upon the vital and fundamental difference between architectural competition and contractual tendering. The former is a contest of skill, the latter a matter of price. In the Manchester debate there was so much harping on cost as to suggest that this distinction was not realised.

* * * *

To admit that, in a sense, architectural competition has a certain relation to cost, since it is a common condition to require competitors to estimate the sum for which their designs could be materialised, might tend to increase the confusion; yet this is a point which cannot be fairly ignored. Much might be said of it as a sordid sophistication of the æsthetic issue, but to reopen this old controversy is beside the present purpose, which is to make it perfectly clear to the lay mind that architects do not and must not, tender for work competitively "in the same way as builders"—that in competitions they do not, and must not try to underbid each other in the matter of professional remuneration.

* * * *

Thirty-five years of strenuous work for technical education is the record with which, on Lady Day, Sir Philip Magnus severed his official connection with the City and Guilds of London Institute. It was in March, 1880, that he became Organising Director and Secretary of the Institute, and eight years later he was appointed Superintendent and Secretary of its Department of Technology, having, in the meantime—in 1886—received the honour of knighthood. He had wished to retire two years ago, but extended his term at the urgent request of his committee. Now, at the age of seventy-three, he is still hale and vigorous, and there is no doubt that his vast store of experience, and his extraordinary native sagacity, will be fully and freely placed at the disposal of those who may be entrusted with the momentous business of reorganising technical education in accordance with the nation's newer needs and aspirations.

* * * *

That reorganisation must be thorough and complete, and Sir Philip has rendered possible its almost immediate realisation by calling into being the scattered and rather undisciplined forces which should now be comparatively easy of mobilisation. In arranging schemes, conducting examinations, awarding prizes and certificates, encouraging teachers, establishing local centres, and in founding the Finsbury College and the Central Technical College—these two being now incorporated in the Imperial College of Science and Technology—Sir Philip and the City and Guilds of London have prepared the way for a great national forward movement in technical and industrial education, which shall enable us not only to hold our own, but to compete aggressively against the foreigner in all parts of the world. No doubt the City and Guilds movement suffered greatly from its comprehensiveness. It took all industry for its province, and by no means neglected the building trades. Its two main difficulties have been the dearth of teachers and the apathy of employers. Of these the former should be easy to overcome, by establishing training colleges on similar lines to those for elementary teachers, and by making it worth the while of intelligent men to adopt the career. At present we too commonly get a tired teacher talking to a languid class.

HERE AND THERE.

NOTHING has done greater honour to the architectural profession than those serried rows of names, column upon column, more than twelve hundred strong, that appeared in the two preceding issues of this Journal: a list of architects, architectural assistants, and students who have responded to their country's call. The number is being added to every day, and in due time we shall want those honourable names cut in good Roman letters on a commemorative panel in the hall of the Institute. It is the War that matters, not competitions for Board of Trade offices, nor discussions over clauses in contracts, nor discursive writing under "Here and There." These other things claim their place; but we can only find time for them when each man has settled his own position in regard to the national appeal that meets his eye at every turn. Admittedly the architectural profession has responded well; again and again in the drawing-office I see the empty stools of those who have gone away to quit themselves like men, to make themselves as efficient with guns, trenching tools, and ambulances as they were wont to be with compasses and scale-rules. But not all who might have gone, and it is with these that the new Recruiting Scheme is concerned. It is set out on page v. of this issue, and I commend it to the attention of all those who come within its scope. The voluntary stage must be reaching its final test, and every man who has no just cause for holding back should see to it that he offers himself *now*, instead of waiting until an inexorable call of compulsory service demands him.

* * * *

In the newspapers of late there has been much correspondence on fashions in war time. It is an inviting subject, but it cannot be countenanced in these pages, concerned as they are with the serious business of architecture and building; and troublesomely serious this is when the projected big scheme is dropped and the architect receives yet another letter saying that the client has decided not to proceed just yet. But though in these columns it be taboo to refer to the turn of Fashion's wheel, there is a letter in the "Daily Chronicle" that has good right to be printed here. It is from "Another Woman" who cannot agree "that it is only right that the women of England should be put to the unnecessary expense of entirely new wardrobes so as to help the members of the dressmaking profession." If this is fair and right, she says, then it would be fair and right for other professions to demand similar preferential treatment. "Take the architectural profession, for instance. It has probably suffered through the war more than any other profession. Architects would be justified in getting up a petition urging every householder, landowner, etc., for conscience sake to improve their premises, to build factories, mansions, villas, etc., for the sake of architects, builders, painters, decorators, brick manufacturers, etc., who are at present suffering untold privations, honestly and silently, for the sake of those who are fighting for us on land and sea." Surely "Another Woman" has the right of the matter here.

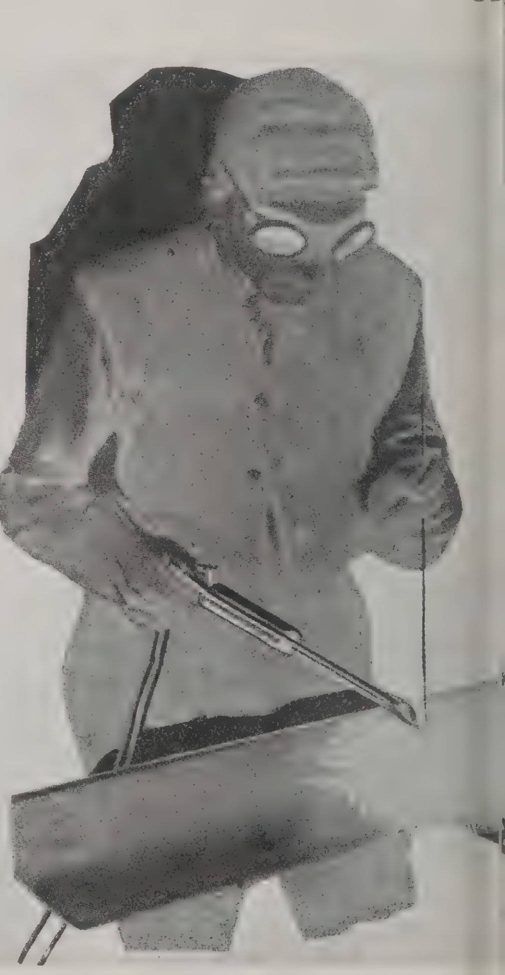
* * * *

Everything considered, I must count myself lucky to have escaped a serious counter-attack after my recent assault on the Futurists and their ways. No "Old Subscriber" who has taken the Journal for more years than it has been published comes forward to rebuke me, no "Regular Reader" sends an anonymous postcard questioning my own sanity. But the matter has not passed entirely without comment, for one correspondent writes to say that he wishes he felt as sure about these things as I do, which, really, is a very polite way of implying that the path I tread is the unhallowed one. Fresh from the sight of a gra
of colour splashings which bore the titles of '
pool" and other delectable resorts, I wrote: "T
truth is, these frenzied experimenters are tr
translate emotion into terms of paint, a thing
cannot be done"; but, says my correspondent,
is true, no painters were ever artists, for to t
emotion into paint or stone is the whole work
painter, the sculptor, and the architect—nothi
very little more." Thus we would appear t
cross purposes; not in reality, however; it is
reading of my intention that makes the differen
view is, that to express emotion in a painting t
must employ intelligible forms as a medium.
have a genius for the Christmas almanac, and
put the title of "The Happy Home" undern
sweetly smiling family group, but it is futile
Futurist to paint a jumble of bright colours,
form and void, and then call the result "Hap
or to paint a series of parallel lines in mon
black and grey and call the result "Dejection."
ing to some notion that, by a mysterious psych
process, bright colours produce the feeling as
with happiness, and parallel lines of dull colo
duce the feeling associated with the opposite co

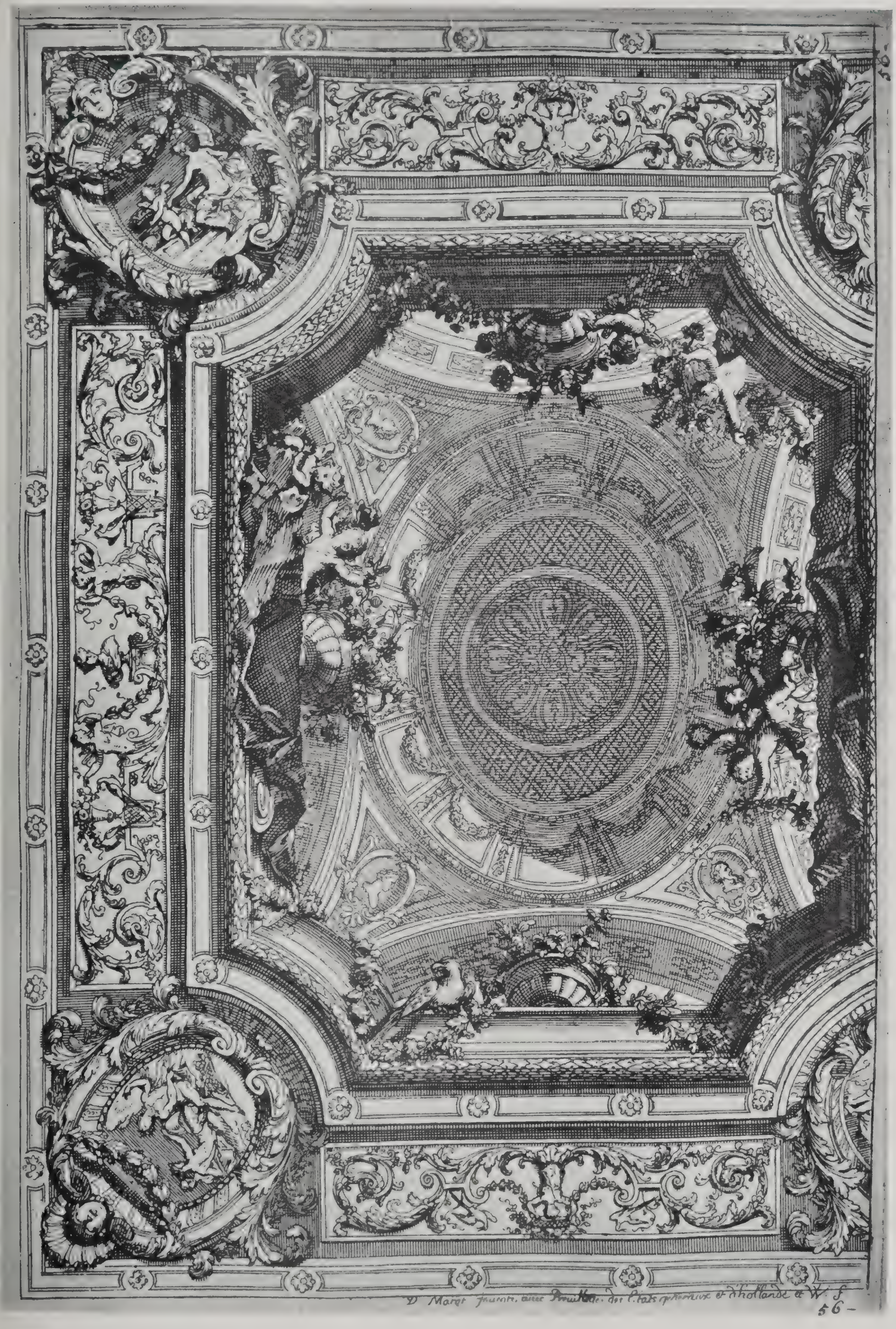
* * * *

The illustration below needs very little co
Let the reader think of the rubicund beave
coachman driving leisurely along the high roa
early years of the last century, and then let hi
a mental contrast with the begoggled, bele
ghoul of a modern chauffeur to whom Henley
in the poem which began, "In the hand of th
Speed!" Then the contrast between the
workman with whom we are familiar and this
can cutting joists with the oxy-acetylene flame
appear so strange.

UB



THE BUILDING WORKMAN OF THE FUTU


D Marot inuente, auec Priuilege des Etats generaux d'hollande & W. f
56 -

DESIGNS BY DANIEL MAROT. III.—A CEILING.

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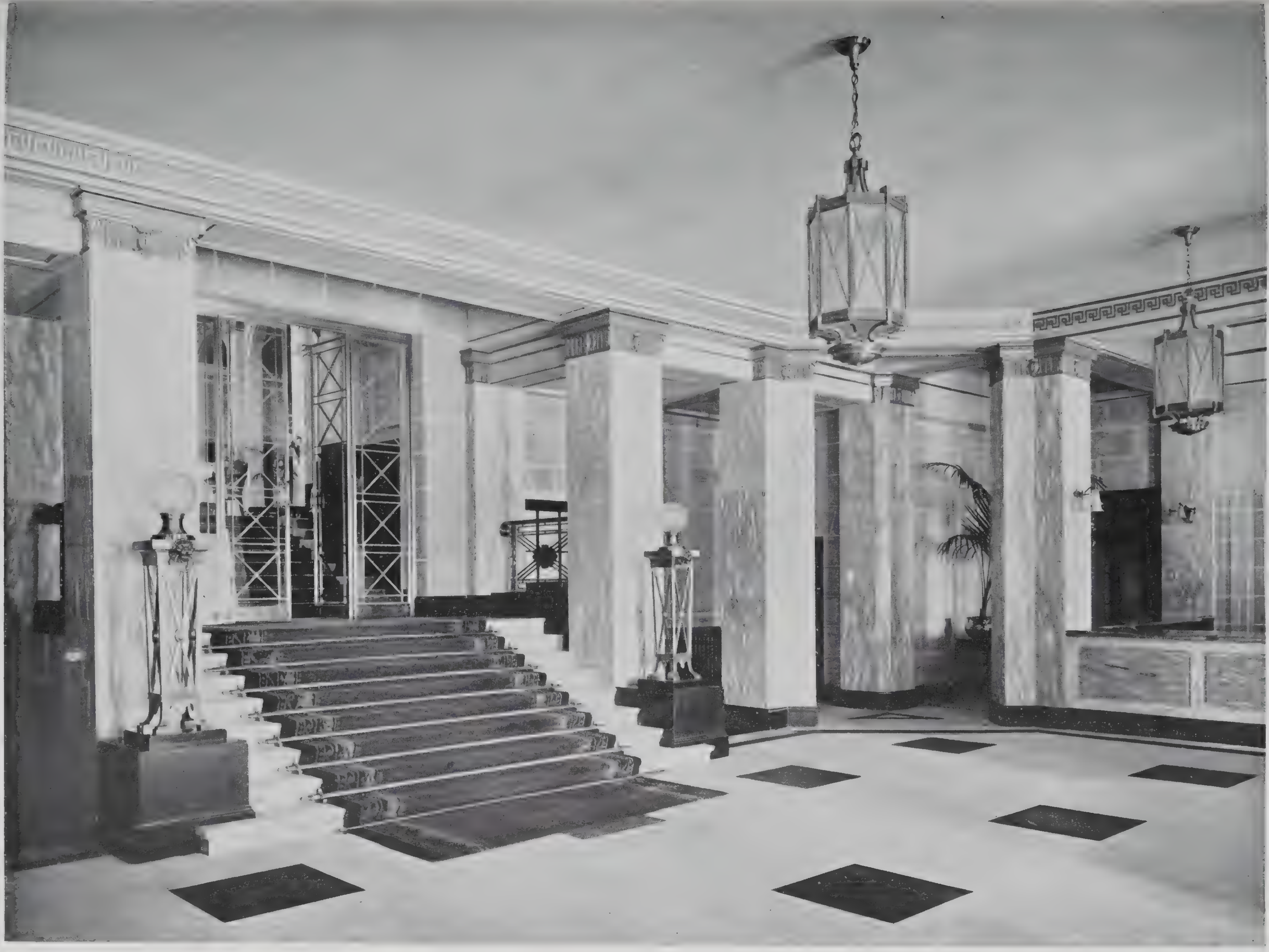

Photo: Bedford Lemere & Co.

CURRENT ARCHITECTURE (SERIES II.). XIV.—ENTRANCE HALL, MIDLAND ADELPHI HOTEL, LIVERPOOL.

R. FRANK ATKINSON, F.R.I.B.A., ARCHITECT.

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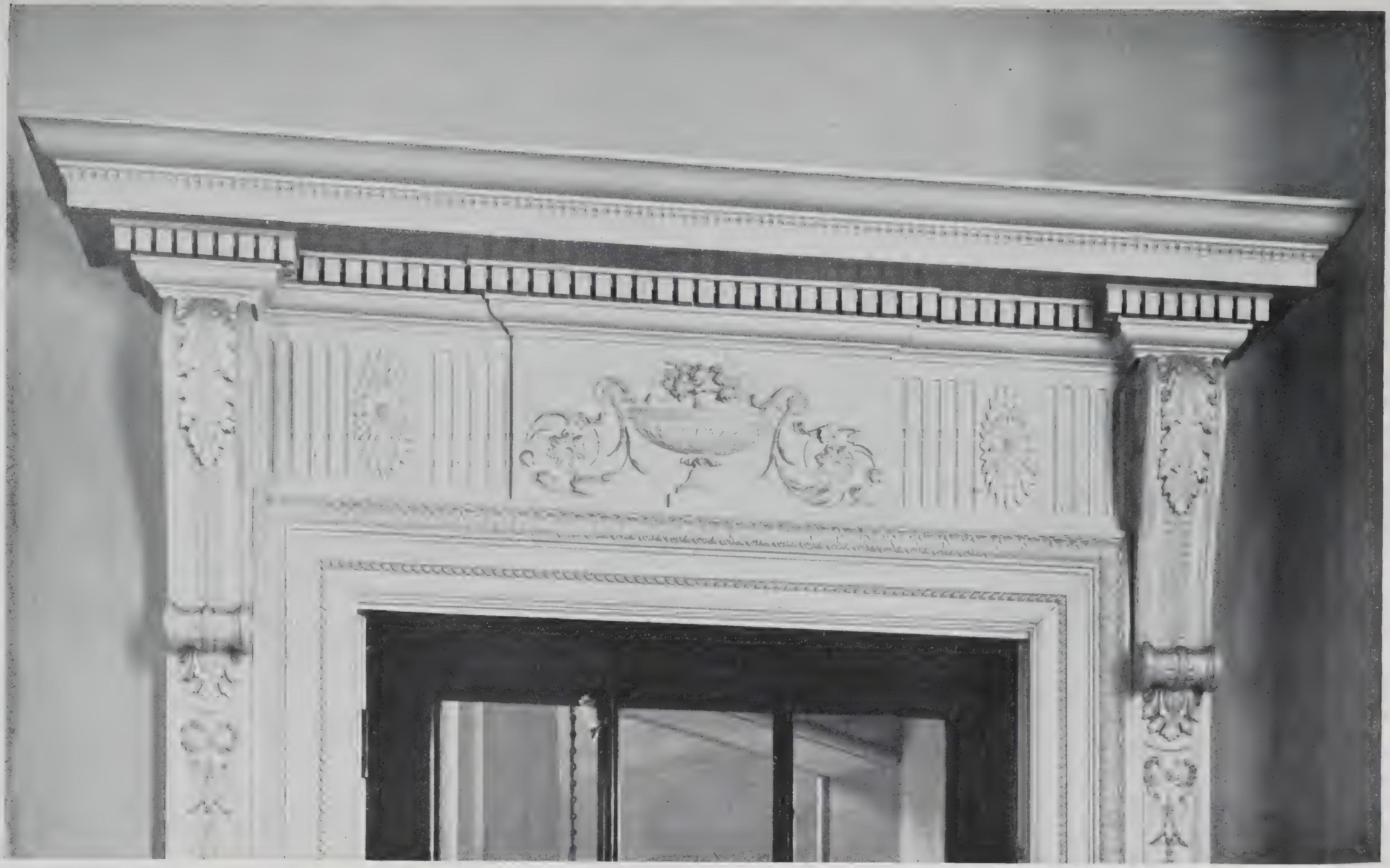

DETAILS OF CRAFTSMANSHIP. XII.—UPPER PART OF DOORWAY IN BILLIARD-ROOM, ROYAL AUTOMOBILE CLUB, PALL MALL, LONDON.

MEWÈS & DAVIS AND E. KEYNES PURCHASE, F.R.I.B.A., ASSOCIATED ARCHITECTS.

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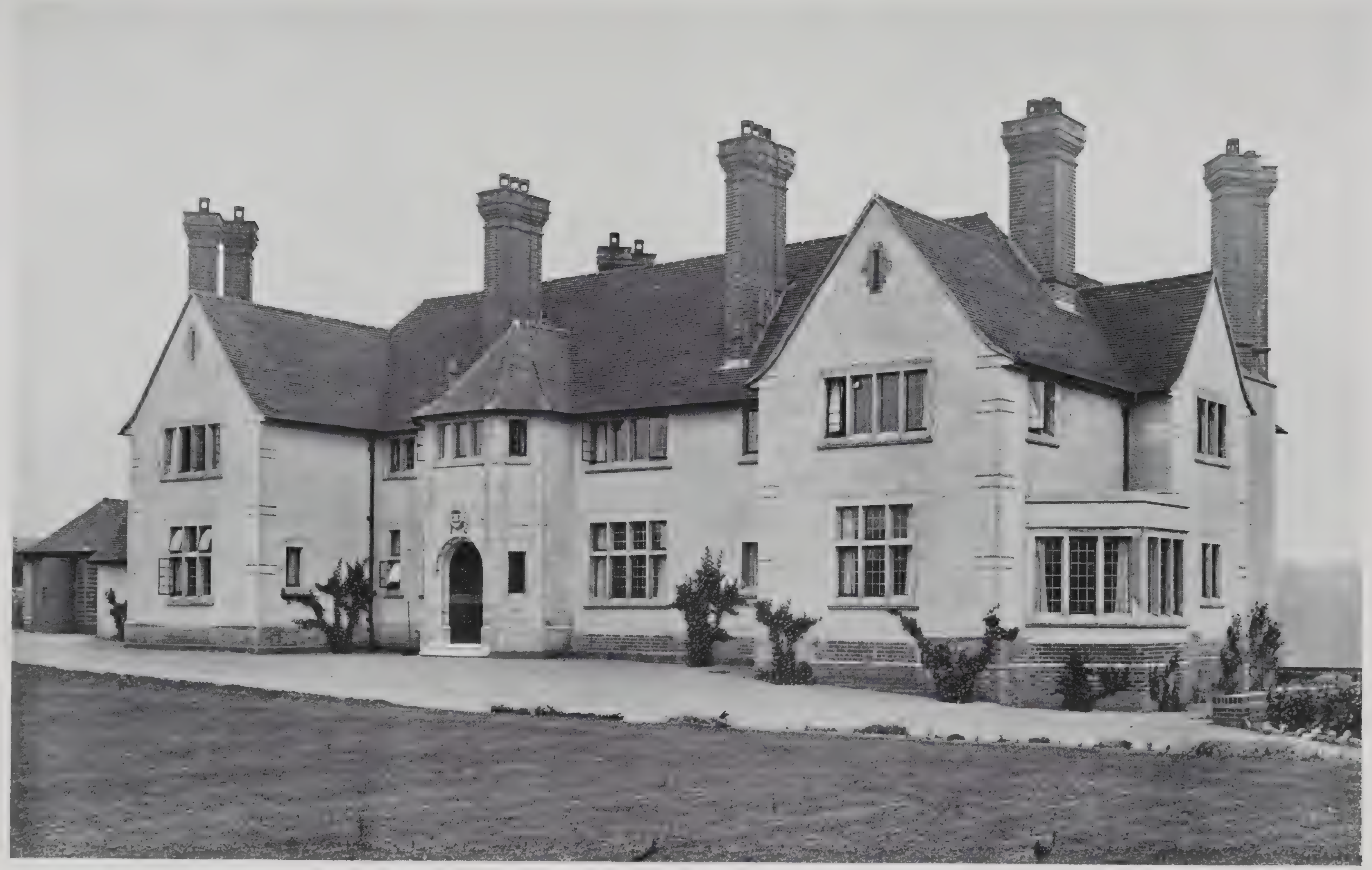

MODERN DOMESTIC ARCHITECTURE (SERIES II.). VI.—"RÄTHEN," HINDHEAD, SURREY.

HENRY A. SAUL, A.R.I.B.A., ARCHITECT.

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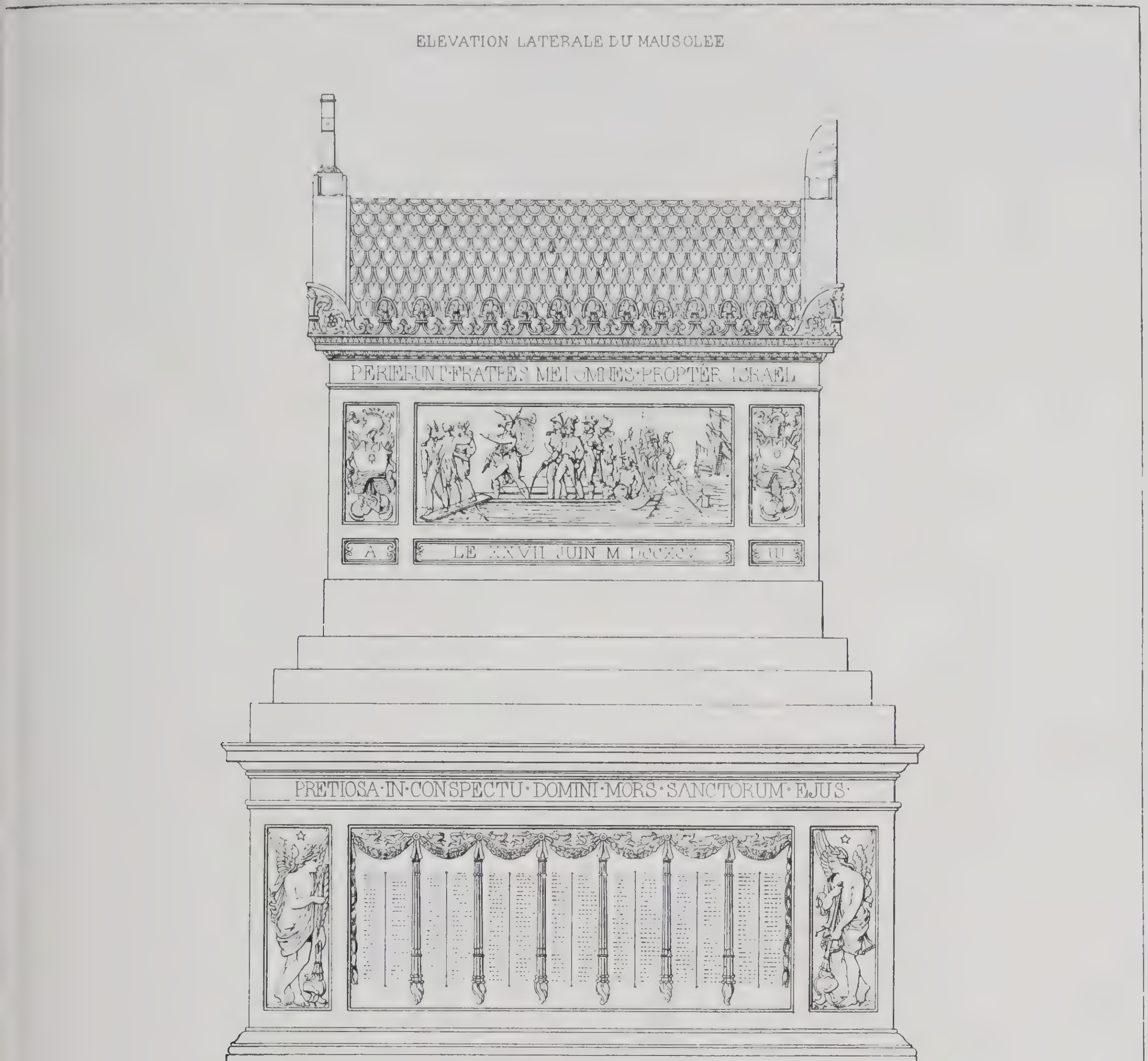
ELEVATION LATERALE DU MAUSOLEE
PERIERUNT·FRATRES MEI·OMNES·PROPTER·ISRAEL
A
LE XXVII JUIN M DCCXCV
Ω
PRETIOSA·IN·CONSPECTU·DOMINI·MORS·SANCTORUM·EJUS·
Echelle de
1
2
3
4 metres
PLAN DE LA CHAPELLE MONUMENTALE
ET DU MAUSOLEE
S.A.R. MONSIEUR LE DAUPHIN PRIANT SUR LES OSSEMENTS
DES VICTIMES DE QUIBERON
S.A.R. MADAME LA DAUPHINE POSANT LA PREMIERE PIERRE
DU MAUSOLEE
Echelle
5
10
15
mètres
Renvoi
A Mausolée
B Chapelle Monum^le
C Ancienne Eglise
D Bas reliefs

FRENCH MONUMENTS. X.—MONUMENT IN EXPIATORY CHAPEL, AURAY.
CARISTIE, ARCHITECT.

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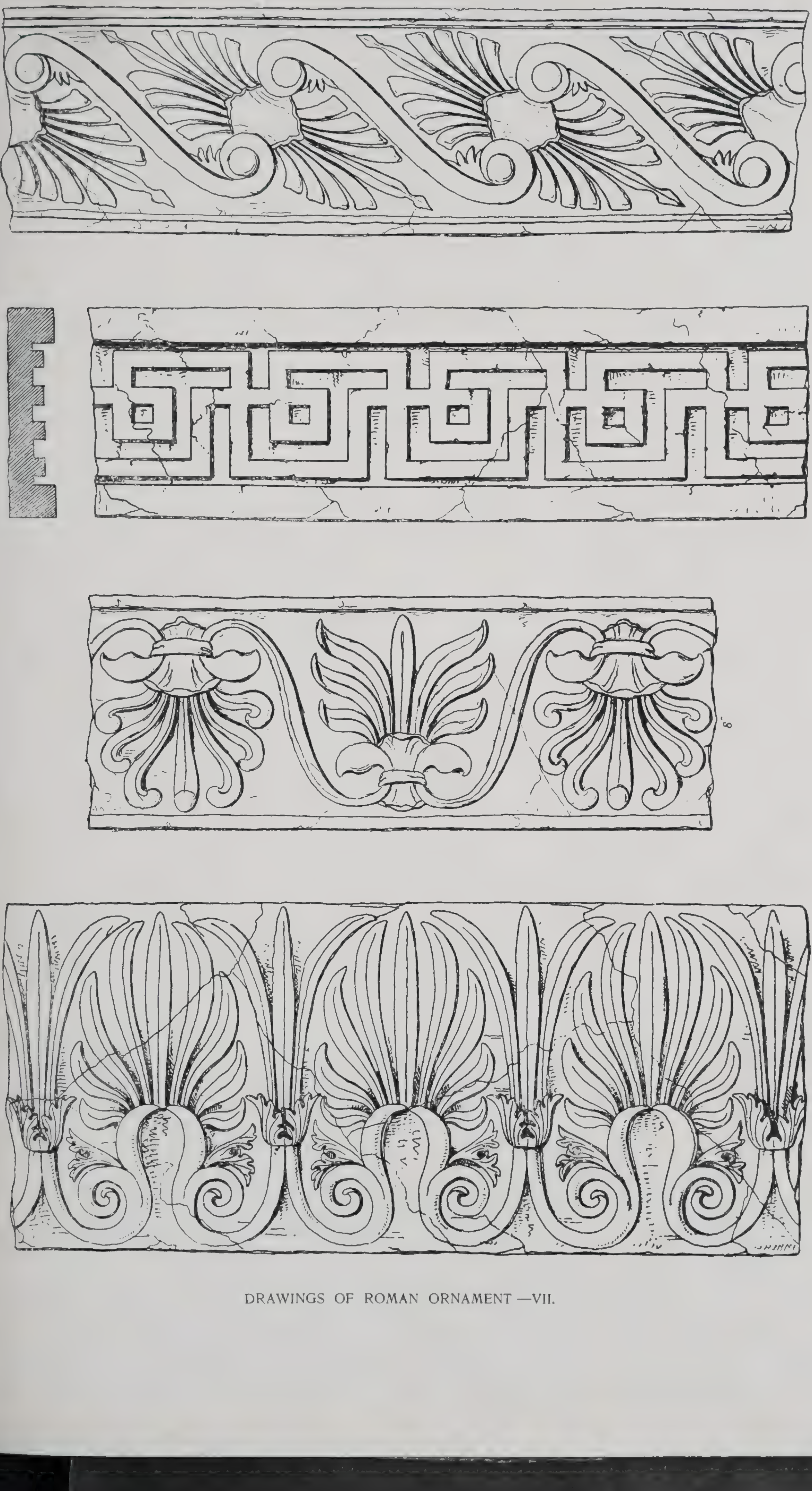

DRAWINGS OF ROMAN ORNAMENT.—VII.

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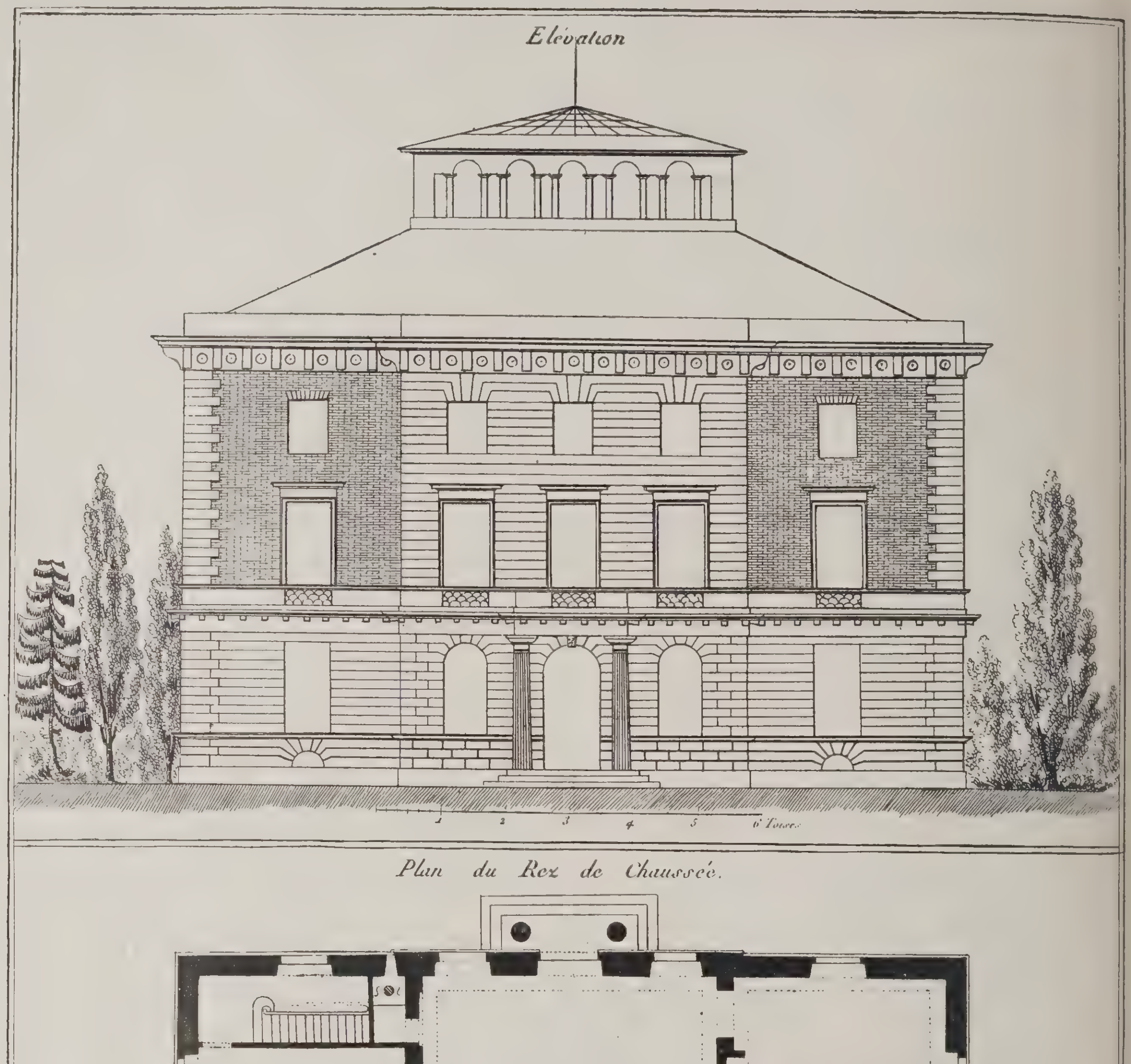
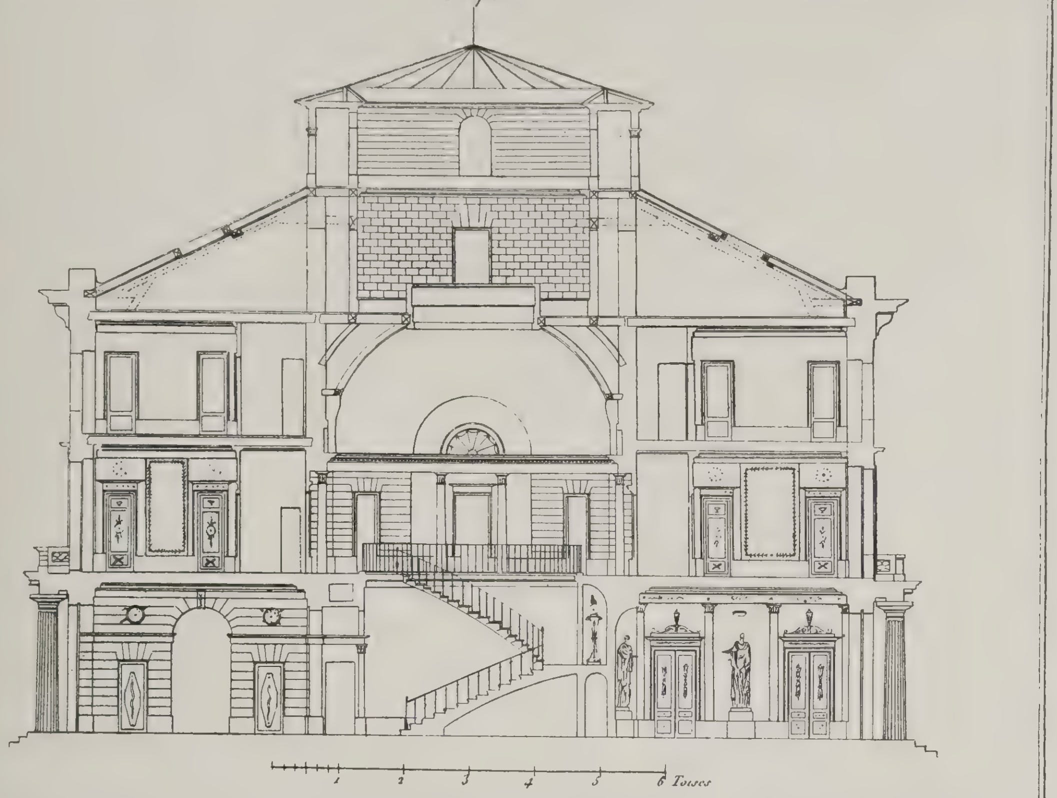
pplement to "The Architects' and Builders' Journal," Wednesday, March 31, 1915.



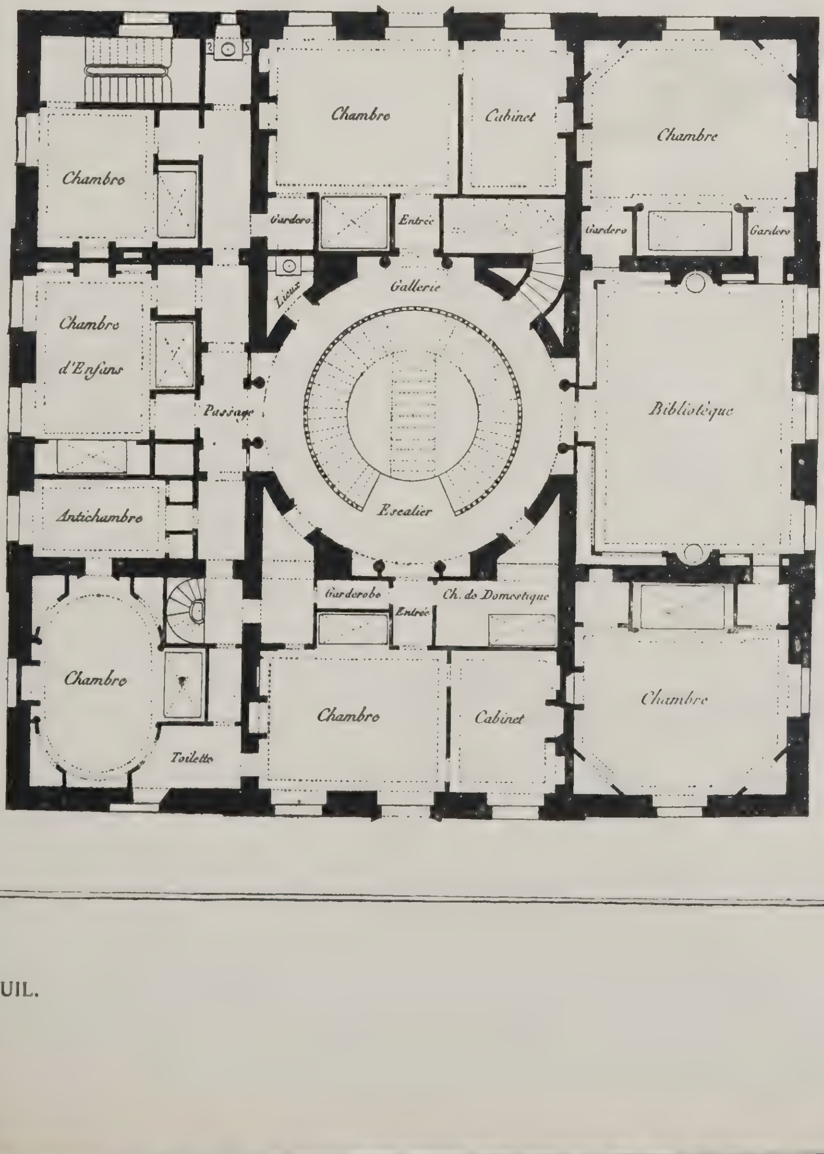
DESIGNS FROM KRA

VILL

Coupe



Plan du 1er Etage



TEAU DE MAREUIL.

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THE PLATES.

Ceiling by Daniel Marot.

ceiling is obviously of so grandiose and elabo-
ate a description as to be applicable only to a
ery large apartment, but it is a dramatic con-
shown by brilliant draughtsmanship, and it
the attention by virtue of these qualities. Pre-
y the greater part, if not the whole of it, was in-
to be painted.

ntrance Hall, Midland Adelphi Hotel, Liverpool.

walls of this fine entrance hall, by Mr. R. Frank
on, are of "stuc," the piers being clothed with
arble slabs and the floor laid with black and
quares of rubber. The lamp standards, lan-
taircase balustrades, and doors are of bronze.

rway in Royal Automobile Club, London.

e is a wealth of fine detail in the enrichment of
yal Automobile Club in Pall Mall. The detail
of the billiard-room door-heads, shown on the
typical. It is of wood and "compo" painted

"Räthen," Hindhead.

house is on the Haslemere Road, near the sum-
Hindhead, and advantage has been taken of
ep nature of the site to form terraces where
ave been made to
nt the indigenous
growths, while
still, in a sheltered
hollow, a charming
garden has been
l. Owing to its
hat exposed posi-
e house has been
ith 14 in. brickwork
l with cement
cast, distempered.
tonework to win-
and entrance is
Park Bath stone.
of is covered with
hick local red tiles.
ternal woodwork is
. The house is
d with due regard to
e south - easterly
and the loggia is
to meet the require-
f a cool position at
ter end of the day.
architect was Mr.
A. Saul, of London,

ument at Auray.

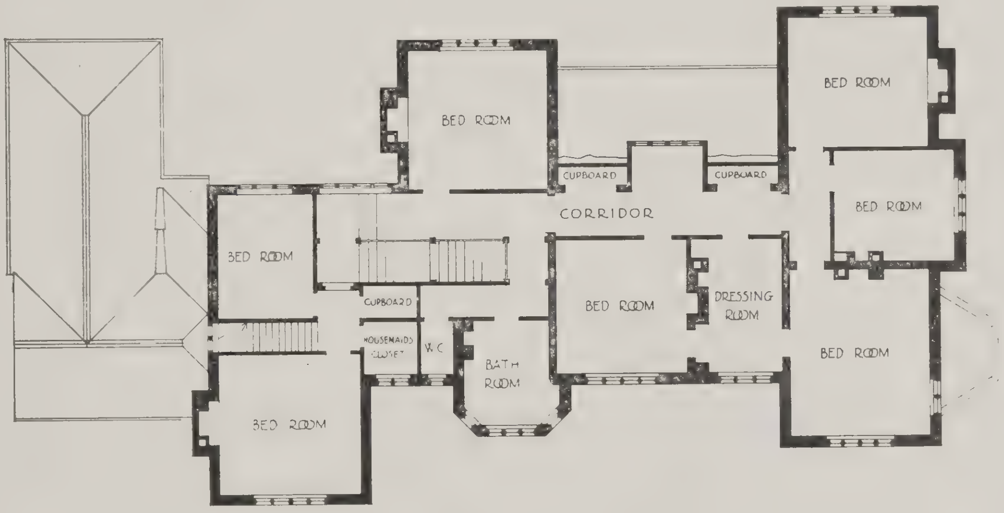
monument, in the
ry chapel adjoining
ncient church of
in North-West
, is to the memory
se Royalists who
rushed by the Re-
ns under Hoche in
s the result of their
ours to stir up La
and Brittany
the Convention.
prises two parts, a
portion with marble
inscribed with the
of those who fell, an
portion in the form
rcophagus comme-
ng the chief personages. At the corners of the pedestal are figures holding reversed torches and palms, while on one of the return faces are sculptured busts of the Counts of Sombreuil and Soulanges, and on the opposite side are busts of d'Hervilly and Talhouet. On the wall separating the expiatory chapel from the church are two bas-reliefs (shown at the bottom of the plate), the one representing the Dauphin praying over the bones of the departed, the other depicting the Dauphine laying the first stone of the monument. Caristie was the architect, Petitot and Roman executed the sculptured figures, and Plantar the carved ornament. A plate showing some details of the work to a large scale will be published next week.

Roman Ornament.

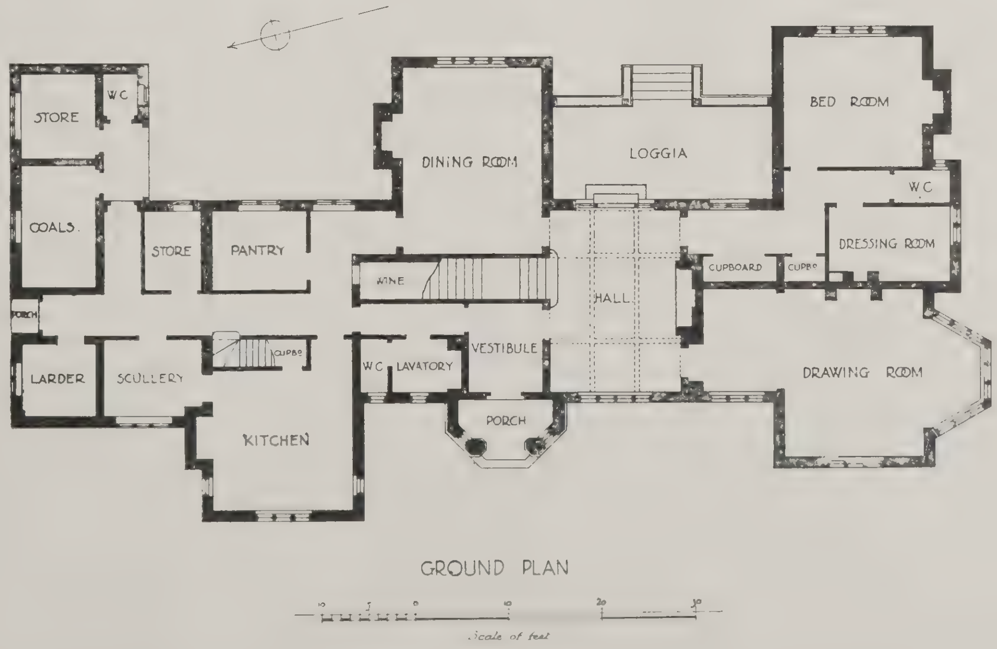
These fragments are from the Villa Albani, near Rome. They need no description.

Chateau de Mareuil.

Once again, as in so many of the designs in Krafft, this offers some striking and suggestive possibilities in house-planning, despite such queer-shaped rooms as those contrived at the corner of the square in which the central staircase hall is set. The ground floor shows a fine suite of rooms, the embellishment of which is very characteristic of that late eighteenth century manner which carried on the Louis XVI. style, soon, however, to be discarded for the style of the Empire.



FIRST FLOOR PLAN



RÄTHEN, HINDHEAD, SURREY. HENRY A. SAUL, A.R.I.B.A., ARCHITECT.

LIFE IN AN AMERICAN SCHOOL OF ARCHITECTURE.

[SPECIALLY CONTRIBUTED BY ARTHUR STURGES HILDEBRAND.]

(*Concluded from page 139, No. 1055.*)

OUR second problem was finished on charrette. All the work in Design was finished on charrette. The one problem of all the four years which was handed in early and without the stimulus of haste gave no sense of earned satisfaction. A charrette was an integral part of the work. Design absorbed us—we thought of nothing but the steady carrying on of which was to give us points. We strove for brilliant *coups*, because a series of medals would put a man through the school months sooner than the slow accumulation of points by plodding, consistent work. We worked hard at water-colour, for we had learned the value of a clever rendering. Between problems we tried to catch up work in lectures—in charcoal drawing, in engineering and perspective—and the principle of the charrette had enormously increased our capacity for doing efficient work in a crowded space of time. No impending mountain of work, no matter how formidable, could discourage us.

In office experience after the second year we began to see results from our school training. We were learning methods that could be applied to "real" architecture. The men beside whom we worked were for the most part not school graduates, and the wisdom of the school's principle of teaching what the office could not teach became encouragingly evident. We talked of the atelier and told stories of charrettes. Indeed, school was so often in our minds that we naturally tended to like office work only in so far as it was like work in school—the architectural profession was a branch of school. During the summer we became so proficient in out-door sketching as not to be disconcerted by a group of peering children.

We started our third year in a new building, and this change in accommodation brought many changes in the routine of the school. The library was on the lower floor of the building—in place of the department of chemistry. The ateliers were in spacious lofts under the roof. These rooms were distressingly bare at first, in their chaste white plaster, and the Director suggested that we might liven up our surroundings by interesting decoration. Accordingly we decorated lavishly by means of pictures from the "Vie Parisienne," and the success of our enlivening efforts led to a stern university order to remove from the walls all decorations which might be offensive to visitors. We knew that any visitor could buy the same pictures at any news-stand, but we removed them, and painted caricatures of the staff of the school instead. The new building was open every night till eleven o'clock, and all night on the three nights of a charrette. We no longer had to work in poorly lighted rooms: the charrette was officially recognised. The Tin House was torn down, and judgments were held in rooms down-town, where we had the benefit of competition with other schools. *Esquisses* were issued more frequently; we had an *esquisse* every Saturday except when a problem was given out or due. Problems in archæology were introduced, in which the period or style was specified. These were in addition to the regular problems, and in our thirst for points we often had two problems on our boards at once. Everyone was in one atelier, and there were more often freshmen to "nigger" for us—inking mosaics, lettering plans, or doing other tasks which were irksome enough to convince the freshmen of their educational value.

Of the courses in our third year—not considering such subjects as Calculus and Mechanics, which were left till the last moment because they were a constant cloud on the horizon—the most interesting was Life
Drawing. Everyone has heard that the n
abandons the armoury of attraction when
abandons her clothes; everyone is doubtful if it
be so in his own case; and everyone is rather surp
to find it true. The increased difficulty of Interme
Design kept us in the atelier the greater part of
day; the problem took longer to "arrive," and
worth more study and attention and more ca
rendering. The problems lost something of
academic character—they were more like actual b
ings, and less like arbitrary tasks set for our
good. We often thought of building these designs
wondered how we should feel when we passed the
the street. However, they were school *projets*,
not "work"—that was the best of it.

Our outlook had by this time broadened to suc
extent that travel in Europe offered a possible
for our enthusiasm. Those of us who went to Eu
after the third year at school found it rather a s
of inspiration than a mine of practical informatio
there is little that can be transplanted in actual
But the thrill of the red cliffs behind Havre, an
pure delight of the Loire Valley, the shouting rom
of the mediæval walls of Carcasonne, the volup
beauty of the Riviera, the inexhaustible charn
Venice, the brown avenues of the Luxemb
Gardens, and the inspiration of the spirit-pe
streets of great grim London—these things ca
transplanted. With what joy did we set out,
bicycles and knapsacks, sketching old churches
quiet streets with overhanging houses, sleeping i
poverished *pensions*, failing at last to find more
for the wonder of Notre Dame at Rouen, or the c
of the Louvre, only looking, and sketching, and
filled with happiness at the glory and beauty of
How did we strive to find love enough in our hear
the smoky dome of old St. Paul's and the cottag
the roadside in the Cotswolds! And mingled
this discovery of the living reality of our dreams
an overwhelming desire to get back to school a
that we might build something of their spirit int
work we hoped to do. This much of Rouen mu
into the next Gothic problem, this much of Susse
the next *esquisse* of a village church. We were
for work again, now that we had seen what it
mean, and the statue of Liberty, the skyline of
hattan, were for us merely an expression of the
that we were coming back to school.

If the lecture courses and work in drawing had
planned for that end from the first, the fourth y
occupied with Design alone. Many of us had made
schedule of points to be gained during the
strangely devoting every effort to escape from the
we loved so well. We did not seek to leave schoo
the aim of our four years had now become possi
attainment, and we sought to be in the long-e
position of those who have done the work that w
be done. Each of us knew how many poin
neighbour had. Competition between us became
keen than ever; we strove for points as a miser s
for gold. But the schedule of successes was
revised by the whims of the jury.

We had all day to work at the problem, with
such interruption as we chose to make for our
for rest or play. When we had worked until e
o'clock every night of the week, we would look
to the deserted tables in the corner where the fres
worked, and think that they did not yet know
work was like. Often we dropped our pencils
sudden impulse, and went to the "Nemo" in a
attempt to recall the delights of that humble sta

v it our first night in school, forgetting that we
t as dull then as now. We did not pretend to
ird all the time; we played hard often. In the
of what was for many of us the last charrette
a procession. It began with the march of a
ibout the atelier, shouldering T-squares and
on a pail. It seemed a happy inspiration, and
uttee was formed to collect money for a drum.
il of the contributors was so great that we got
ims, two fifes which nobody could play, and a
hand drum-major's hat which nobody would
We rehearsed at intervals all day, to the distress
lecturers on the floor below. At midnight we
d out into the bitter cold night, leaving the
an staring at the Ionic cap we had painted on
n-heads, and the long straggling line in blouses.
re back in the atelier in an hour, after having
ed a professor, and we felt that this was a good
te, for which we would have to pay in facing
displeasure. But nothing occurred beyond the
ition of the drums.
of us were working on two problems, and we
our time between our various boards, putting
on a French seventeenth-century house while
was drying on the Monument to Commemorate
l Victory, and directing the forces of niggers
ere working on the plans. There were two
when we worked until the sun rose, sleeping for
r or two on a pile of blouses on the tables, and
ys and a night of consecutive feverish working
end. A wash of cobalt on the Monument sky,
w figures in the street before the half-timbered
entourage for the plan, interior design for the
, niggers to be told how to cast shadows, more
to run to borrow a pan of French blue, trips to
lar to select *chassis* from the pile, cigarettes
ed on the edges of tables and forgotten, and
an eye on the clock. When there are three
eft, the critics appear among us with suggestions
rendering. We slap up a cartouche over a door-
ender it, streak the foreground, touch up a
taxicab, and climb on a stool to view the effect
n encouraging distance. The atelier is in an
—niggers are tacking cloth on the *chassis*,
d students whose eyes are unnaturally bright
out the room, shuffling through the paper and
and wadded clothes which litter the floor, the
r is at the door crying "One half-hour more!"
itics are on the stools now, pointing out possible
ements. "Hey, freshman, mix me a saucer of
—Fin, are you going to use all this paste?—My
who's got some paste?—Do you think these trees
rk enough?—Hey, they're taking them down-
—Where's my plan?"—Got a cigarette?——"
anitor begins to turn out the lights; we put on
ats and slink down-stairs. It is the last charrette.
le, the world is like some great, quiet poster in
nd frosty silver.

CORRESPONDENCE.

Cellars and Basements.

Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

s,—I endorse the views of the well-known archi-
ho has written to you commending the desira-
of having cellars to dwelling-houses wherever
cable. A dry cellar keeps a house healthy by
g the house above it both dry and well ventilated.
m constantly receiving letters from property
s who have damp and flooded cellars. A
d cellar is worse than no cellar at all. If any
ect could sit in my office and see the number of
that reach me asking advice on how to make
dry, I am sure it would result in more attention
given to the waterproofing of the basements of
constructed houses.

Your remarks upon basements as living-rooms especially appeal to me for this reason: I recently spent a week in a large Midland town with a friend searching for a house. The agents informed us that there were 6,000 houses to let in this district, many of them being over £25 per annum and having cellar kitchens. Tenants will not take provincial houses with cellar kitchens nowadays, because the maidservants will not serve a mistress who resides in such a house. They object to climbing the stairs.

I think every architect knows this, but it came back to me with double force in my recent search for a house.

I saw one or two houses where a kitchen had been built on to the back premises and the cellar kitchen had been totally ignored, but such cases were rare. I imagine that it would pay owners of such property to employ an architect to convert basement houses into up-to-date residences by such additions.

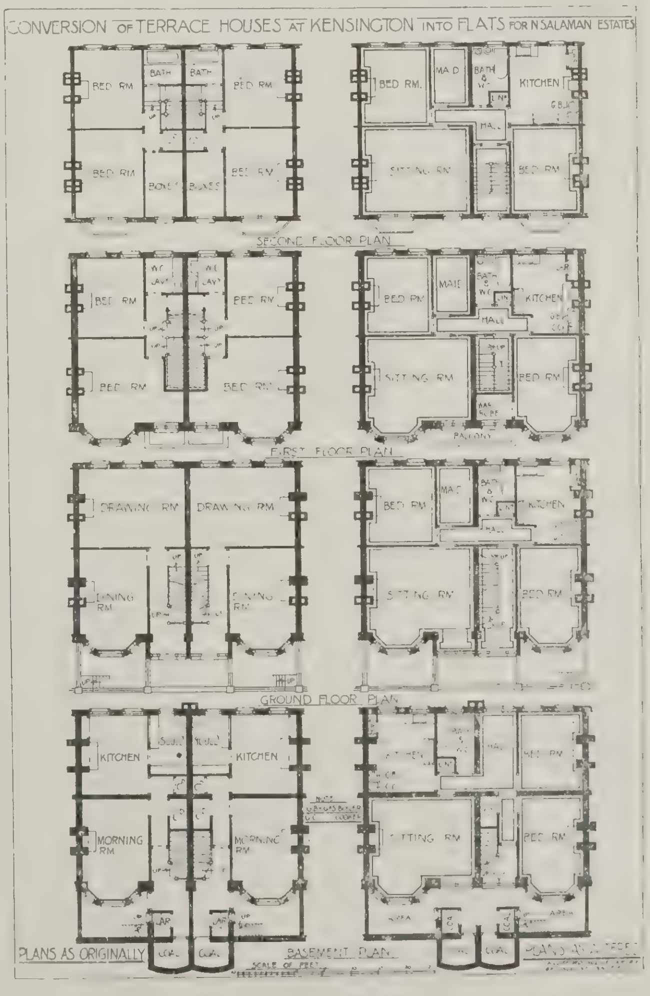
J. H. KERNER-GREENWOOD.

Conversion of Terrace Houses into Flats.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Having read with interest the remarks that have appeared in your columns from time to time in reference to basement houses, I venture to send plans of a scheme which I recently carried out for the trustees of the N. Salaman Estates at West Kensington. The general arrangement is easily explained by the plans themselves. The new staircase and the entrance doors and screens were executed in oak, wax polished, with metal glazing. Gas boilers were fitted in each flat, with independent supply and service, and a small portable range for emergency use.

H. CLIFFORD HOLLIS, A.R.I.B.A.



H. CLIFFORD HOLLIS, A.R.I.B.A., ARCHITECT.

SPECIAL LEGAL REPORT.

Quantity Surveyor's Claim for Fees.

Richardson v. Pillivant.

March 18. King's Bench Division. Before Mr. Justice Darling.

This was an action by Mr. E. E. Richardson, a quantity surveyor, of Sylvan Avenue, Mill Hill, Middlesex, against Mr. F. T. Pillivant, of Bath Street, City Road, to recover the sum of £281, being the amount alleged to be due for professional services rendered in respect of a building to be erected by the defendant at Wiltshire Row, Hoxton. Plaintiff's claim was made up of two items, viz., in respect of lithography for copying, etc., £14 5s., and reasonable remuneration for services as quantity surveyor in taking out quantities, 2½ per cent. on the lowest tender of £10,900, £266 5s.

Defendant, by his counsel, said if his architect had implied authority to employ the plaintiff it was revoked by a letter of defendant to his architect, before his architect employed the plaintiff, in which defendant said: "It must be quite understood, so as to avoid any misunderstanding, that no expense is to be incurred for me except I agree to it in writing." Defendant also denied that he had any notice of the employment of the plaintiff or that he agreed to employ the plaintiff. Defendant alleged that the amount claimed was unreasonable and excessive.

Mr. Hemmerde, K.C., and Mr. G. A. Scott appeared for the plaintiff, and Mr. Dickens, K.C., and Mr. S. P. J. Marlin for the defendant.

Mr. Hemmerde said the plaintiff sought to recover fees from the defendant for certain work done on behalf of the defendant. The plaintiff was employed by the defendant's architect to get out certain bills of quantities, and the plaintiff's case was that the accredited architect had the implied authority of the defendant to engage a quantity surveyor. It appeared that some time prior to 1913 defendant desired to obtain larger premises for his business as a cardboard box manufacturer, and he engaged an F.R.I.B.A. as his architect. Tenders were asked for, but counsel said the matter eventually fell through. Defendant had set up a letter revoking any authority to the architect, but counsel contended that an accredited architect had the right to employ a quantity surveyor. This implied authority is known and recognised throughout the profession, and his client had the right to assume that he had been properly engaged. In this case tenders were actually asked for, and the lowest tender was that of Messrs. Mattock and Parsons for £10,900, but the defendant relinquished the erection of his factory

Plaintiff gave evidence in support of his case and said that his charges were fair and reasonable.

The evidence of the architect, on behalf of the plaintiff, taken on commission, was read.

Mr. A. J. Gate, a quantity and measuring surveyor, of Mecklenburgh Square, stated that the plaintiff's charges were fair and reasonable and in no way excessive for the amount of work done. As a matter of fact, he estimated that the plaintiff was entitled to nearly £300.

Mr. Dickens, for the defendant, submitted that the architect had no authority to employ the plaintiff, and it was apparent from the letters that he gave the architect no authority to pledge his credit in any way. The architect never suggested that quantities had to be got out, and, from the letters of his architect, the defendant was entitled to think, as he indeed did think, that the architect was really taking out the quantities in his own office. The architect never intimated to the defendant that he was going to employ a quantity surveyor, and as the defendant's authority was a limited one he contended that the defendant was not liable to plaintiff for the amount claimed.

Defendant gave evidence and said he never authorised the architect to employ a quantity surveyor. The architect never suggested to defendant that any outside assistance would have to be employed in this matter.

Cross-examined: He had never seen the bills of quantities issued to the builders and did not hear of them. He had arranged a settlement with his architect for a sum of £50, but he thought that he might have settled the whole matter for £25, including plans, bills of quantities and all.

Evidence was given that it was common, though not usual, for these quantities to be prepared by the architect.

His lordship, in giving judgment, said he came to the conclusion that it was never brought to the mind of the defendant that a quantity surveyor was to be or was employed, nor was he told that a quantity surveyor would have to be employed. His lordship held that the implied authority of an architect to order a quantity surveyor to take out quantities was a matter limited by his employ, and there was no general authority to employ a quantity surveyor to be implied, having regard to the evidence of the defendant's witnesses and letters exchanged. Many architects took out quantities for themselves. There was no rule of law or general implication that if one engaged an architect one engaged a quantity surveyor as well. The letters of the defendant expressly limited the architect's authority. He had no authority to order a quantity surveyor to do this work. On the construction of the defendant's letters, the architect had an express direction not to do anything equivalent to engaging a quantity surveyor and he did it without authority, and plaintiff had no right to sue the defendant. He held that the defendant was entitled to succeed and to judgment with costs. In case the matter should go to the Court of Appeal and they should hold his lordship was wrong, then he said that if the plaintiff was entitled to anything he was entitled to £164 2s. and £14 15s. disbursements, a total of £178 17s.

His lordship granted a stay of execution with a view to an appeal.

OBITUARY.

The Late Mr. Walter Crane.

In a letter to the Press, Messrs. Edward S. Prior, Alfred Parsons, Ernest Newton, N. R. Hope-Pinker, and Selwyn Image write: "When, by-and-by, the history of English art during the past forty years comes to be written, in that critical record his [Walter Crane's] name will stand out prominently; as already for many a day it has so stood in the estimation of artists generally, and the art-loving public abroad. But at the moment, in the generation that knew Walter Crane personally, there are, we feel sure, many who would recognise it as most becoming that, if possible, his ashes should be finally laid to rest beneath the roof of St. Paul's, or, at least, that space for some memorial of him should be there found, where the nam not a few of our representative artis reverently recorded."

Dr. S. G. Rawson.

Dr. S. G. Rawson, principal of the tersea Polytechnic, who died after a illness on Tuesday of last week educated at Charterhouse School, Royal College of Science, Univ College, London, and University Co Liverpool. He became lecture Chemistry at University College, pool, and in 1895 he was appointed cipal of the Technical College, Hud field. In 1903 he was appo Director of Education to the cestershire County Council, an September, 1907, principal of the B sea Polytechnic. Since January, 191 had been Chairman of the Council Association of Technical Institutions.

COMPETITIONS.

Whitehaven Housing Competitio

Mr. Ian MacAlister, secretary o Royal Institute of British Archi writes: "Members and Licentiate advised that the conditions of the competition are not in accordance wi Institute Regulations for Archite Competitions, and the Competi Committee are in correspondence wit promoters with a view to their ar ment."

Artisans' Dwellings, Liverpool

In the competition promoted by Housing Committee of Liverpool Council, for artisans' dwellings erected in the Rathbone Street area following awards have been annou 1 (£100), Messrs. Biram and Fletche Helens; 2 (£50), Mr. F. E. D. Ba Stoneycroft; 3 (£25), Messrs. Hallida Paterson and Mr. C. Gustav Agate, architects, Manchester. Eighty complete designs and one unfir drawing were submitted, and all have placed in the Walker Art Gallery, they will be on exhibition durin Easter holidays. Mr. Henry Ha F.R.I.B.A., Liverpool, was the asses

LIST OF COMPETITIONS O

April 21.—Housing, Whitehav Corporation invite designs for layin site and erection of houses. Auth design placed first to be employed as tect, or otherwise to receive 30 gu premium; second premium, 20 gui third, 10 guineas. Conditions (£ returnable), The Borough Surveyor, Hall, Writehaven. [See note above.

April 30. — Grammar Sc Leicester. — The Corporation designs for the new Wyggeston Gra School for Boys to be erected on next Regent Road. Competition li to architects practising in Leic Premiums £100, £70, and £50. Ass Mr. George H. Widdows, F.R.I.B.A

May 31.—Laying-Out Ground University of Western Austra Designs are invited for the laying-o the grounds at Crawley, Perth, W Australia. Premiums, first, 100 gui second, 25 guineas. Drawings must the Registrar, University of Perth later than May 31. Documents re to the competition may be seen a offices of the Agent-General for W Australia, Savoy House, Strand, W.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

NT OF RESISTANCE OF S.J. FILLER FLOORS.

C. MESTON, Licentiate R I.B.A.

question as to what extent a rolled ist filler floor with the joists em- in good Portland cement concrete iger than a floor with naked joists en many times discussed, and great nces of opinion have been expressed, ngineers going so far as to say that ength is practically doubled when sts are embedded in concrete, and holding the view that the increased h is negligible. The writer has a fairly common practice among engineers to be to calculate the h of the joists as though they were d to about nine or ten tons per inch; the engineers who adopt this e argue that, owing to the concrete the actual stress in the steel will be out $7\frac{1}{2}$ tons per sq. in.

pical floor of this form of construc- shown by Fig. 1, and an investiga- the moment of resistance of the ation shows that the increased h of the floor in this case is 19.3 per

me previous calculations that have nade, the joists have been assumed acting wholly in tension, and the of the tensile force has been d to be at the centre of gravity of ist. This obviously cannot be (unless there is a very great thick- concrete above the top flange of st), as some part of the joist will be the neutral axis, and will conse- be in compression. Another of calculation ignores altogether h of the joist as comes above the axis, but this can only give an ap- ate result, as it will be seen on g to the figures for compression in that the flange and web of the ke about one-fifth of the total com- n, and this is too large an amount holly neglected.

algebraical method here adopted of the neutral axis is that of taking nts. The moment of the concrete is ken, then the moment of the flange joist, and then the moment of the of the web above the neutral axis. case of the flange and web, the nt taken is not that of the actual out of the "equivalent area," that he case of the compression side) the a multiplied by 14 (or "M" — 1), the case of the tension side the net nultiplied by 15 (or "M")—"M" he modular ratio.

he sake of clearness, I have set out uation for the typical floor illus- as below. The various terms in the on will be made clear by reference . 2.

Compression = Tension
nt of concrete + Moment of flange
ment of web = Moment of flange
+ Moment of web.

$$y \times \frac{y}{2}\Big) + \Big(1.128 \times 14 \times \overline{y - 1.176}\Big)$$

$$22 \times 14 \times \overline{y - 1.5}\Big) \times \frac{y - 1.5}{2}\Big\} =$$

$$.128 \times 15 \times \overline{5.824 - y}\Big) +$$

$$\Big\{\Big(.22 \times 15 \times \overline{5.5 - y}\Big) \times \frac{5.5 - y}{2}\Big\}$$

$$15y^2 + 15.8y - 18.58 + (3.08y - 4.62) \times \frac{y - 1.5}{2} =$$

$$98.5 - 16.9y + (18.12 - 3.3y) \times \frac{5.5 - y}{2}$$

$$30y^2 + 31.6y - 37.16 + 3.08y^2 - 9.24y + 6.92 = 197 - 33.8y + 99.6 - 36.24y + 3.3y^2.$$

$$29.78y^2 + 92.4y = 326.84.$$

$$y^2 + 3.1y = 10.99.$$

(Add 2.404 to each side).

$$y^2 + 3.1y + 2.404 = 10.99 + 2.404.$$

(Extracting the square root)

$$y + 1.55 = 3.66.$$

$$y = 3.66 - 1.55.$$

$$y = 2.11 \text{ inches.}$$

A graphical solution of the problem is probably easier, and the method recommended by Mr. W. Lucas, A.R.I.B.A., in his article in the issue of this Journal for December 3, 191? is here adopted (Fig. 3). It will be observed from this diagram that the total compression scaled from the graph amounts to 23,239 lb., and the total tension to 23,260 lb. As pointed out in Mr. Lucas's article, this difference is merely due to the impracticability of drawing and scaling with absolute accuracy, but as the error only amounts in the present case to 0.09 per cent., it is negligible. The moment of resistance of the floor has been worked out from the lower value (viz., 23,239 lb.).

It will be seen that the neutral axis is at a distance of 2.11 in. from the compressed edge; consequently, when the extreme stress in the concrete is 600 lb. per sq. in., the extreme fibre stress in the steel is 16,650 lb., or 7.44 tons per sq. in. Clearly

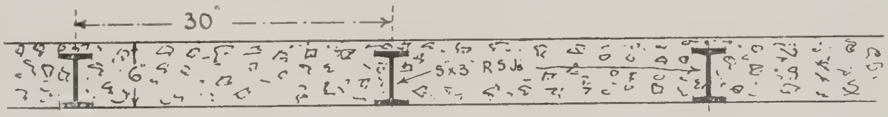


Fig. 1.

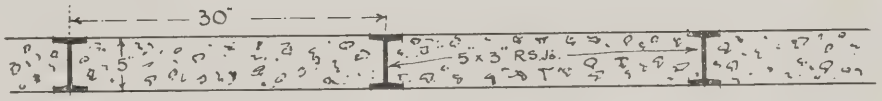


Fig. 4.

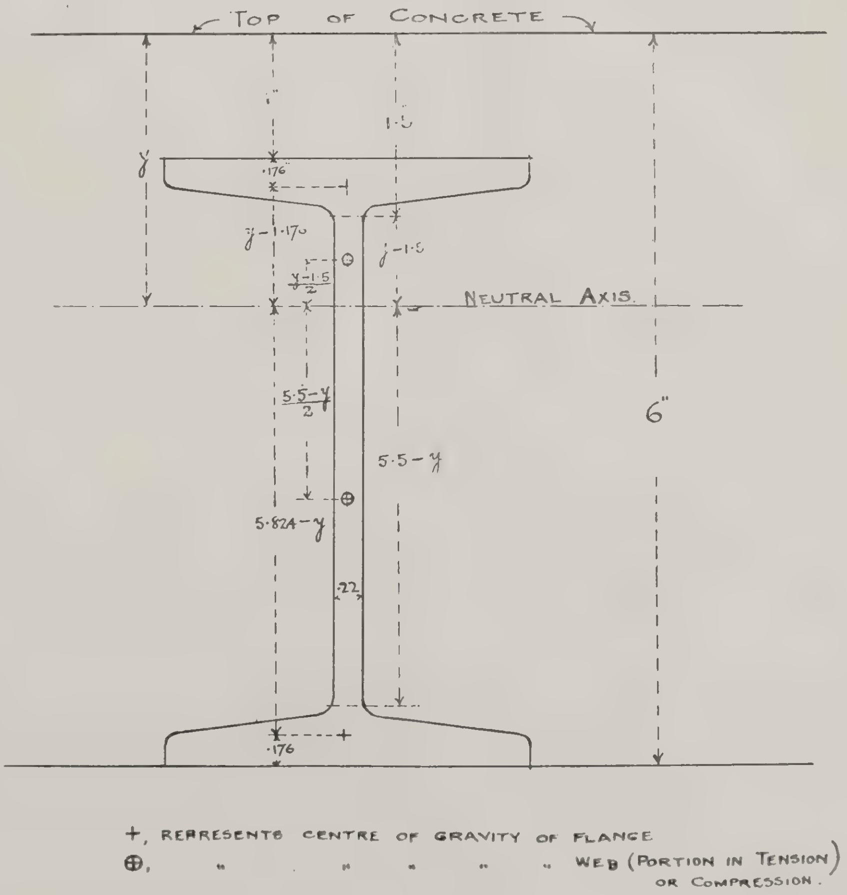

TOP OF CONCRETE
1"
1·5
y
·176"
y-1·176
y-1·5
y-1·5/2
NEUTRAL AXIS.
5·5-y/2
5·5-y
5·824-y
·22
·176
6"
+, REPRESENTS CENTRE OF GRAVITY OF FLANGE
⊕, " " " " " WEB (PORTION IN TENSION OR COMPRESSION.)

Fig. 2.

then this type of floor with the joists spaced as indicated is economical, as both steel and concrete are working at their maximum stresses together. Of course, these figures will vary with the spacing of the joists, but in the equation the only term which will vary is the “$30y^2$” and a different figure must be substituted according to the spacing of the joists. In the graph, only the line showing the moment of the concrete will vary with the spacing, so that the position of the neutral axis can very readily be found for any spacing.

The result shows that whereas the moment of resistance of the joist acting alone would be 40.8 inch-tons, the moment of resistance of the combination is 48.7 inch-tons, and there is therefore a gain of 19.3 per cent. by embedding the joists in concrete. In the case under consideration, if the joists were calculated in the ordinary way (neglecting the concrete filling), but on the assumption that the stress would be nine tons per sq. in., then, when the concrete filling has been allowed for, the actual stress would only be 7.5 tons per sq. in. But if the spacing were increased, the extreme tensile stress in the steel would also be increased, as the neutral axis would be higher.

If this method be applied in the case of a floor with the joists at similar spacing, but with the concrete level with the top flange of the joists (Fig. 4) it will be found that the moment of resistance of the combination is exactly the same as the moment of resistance of rolled steel joists. From the foregoing figures it will be seen that when the joists are spaced not less than 30 in. apart no advantage results from their being embedded in concrete unless such concrete covers the top flange of the joists, and the amount of such cover should usually be not less than one inch.

The above is true only on the assumption that there is sufficient adhesion between the concrete and the joists to make them act as one.

The case dealt with in this article is only that of 5 in. by 3 in. joists with 1 in. of concrete above top flange, and the economical spacing for other joist sections and other thicknesses of concrete, of course, varies. The following may be given as the joists more commonly used as fillers, and the economical spacing is given for each. By “economical spacing” is meant that spacing at which both the steel and the concrete are working at their maximum stress together when fully loaded.

Joist Section.	Depth of Concrete above Top Flange.	Depth from Top of Concrete to Neutral Axis.	Economical Spacing.
7 in. × 4 in.	1 in.	2.74 in.	2 ft. 9 in.
6 in. × 3 in.	2 in.	2.77 in.	2 ft. 6 in.
6 in. × 3 in.	1 in.	2.42 in.	2 ft. 5 in.
5 in. × 3 in.	2 in.	2.45 in.	2 ft. 8 in.
5 in. × 3 in.	1 in.	2.1 in.	2 ft. 6 in.
4¾ in. × 1¾ in.	2 in.	2.35 in.	1 ft. 9 in.
4¾ in. × 1¾ in.	1 in.	1.98 in.	1 ft. 8 in.

The figure for the depth from top of concrete to the neutral axis is only correct for the spacing indicated in the fourth column and, of course, varies with the spacing of the joists.

CONCRETE AND STEEL CONSTRUCTION FOR BUILDINGS ON SHIFTING GROUND.

One of the problems presenting itself to the architect and to the engineer in coal-mining districts in this country (Mr. Wilfrid J. Fawcitt writes, in the March issue of “Kahncrete Engineering”) is the avoidance of cracks, and in many cases the ultimate destruction of the building, due to ground movement. In no part of the country is the problem more acute than it is in the County of Durham. It has very specially presented itself to the Education Authority, who during the last five or six years has been erecting probably as large a number of buildings as any authority in the kingdom. An architect who has only an occasional building to erect may decide to take some risks, but the Education Architect of Durhan William Rushworth, F.R.I.B.A., dozens of buildings to erect every had to face the problem with car decision. In certain quarters o county it became almost impossil erect brick buildings, for subsidence frequently broke the back of the wa fore the buildings could be occupie

The problem of preventing mov is almost an insoluble one, so far a ing with it by way of reinforcing the dations is concerned, because lik wind the earth moveth where it liste

In another article in the same is the journal quoted, Mr. Marshall, tiate R.I.B.A., explains how his firn were entrusted with the design Greencroft School, overcame the di in that case. Instead of buildir school with heavy brick walls they a a light steel-framed building with th formed of Hy-Rib. The result will even though movements do occur ground the safety at least of the str will not be imperilled. A rackin twisting of the steel framework ma place, and, as a consequence, cra the walling may occur, but onc ground has resettled into its new p these cracks and deficiencies can be good, and the final result will be a factory as when the school wa erected. This method of const should appeal to other architects w meeting with the same difficulty ground.

Elsewhere in the same issue of this publication there is an instructive on the effects of the recent earthqu Italy. It is shown that here, as in instances, the only buildings that through the ordeal with comparat munity were of reinforced-concret struction, their monolithic charact serving them from the disintegrat evitable with synthetic brickwo masonry.

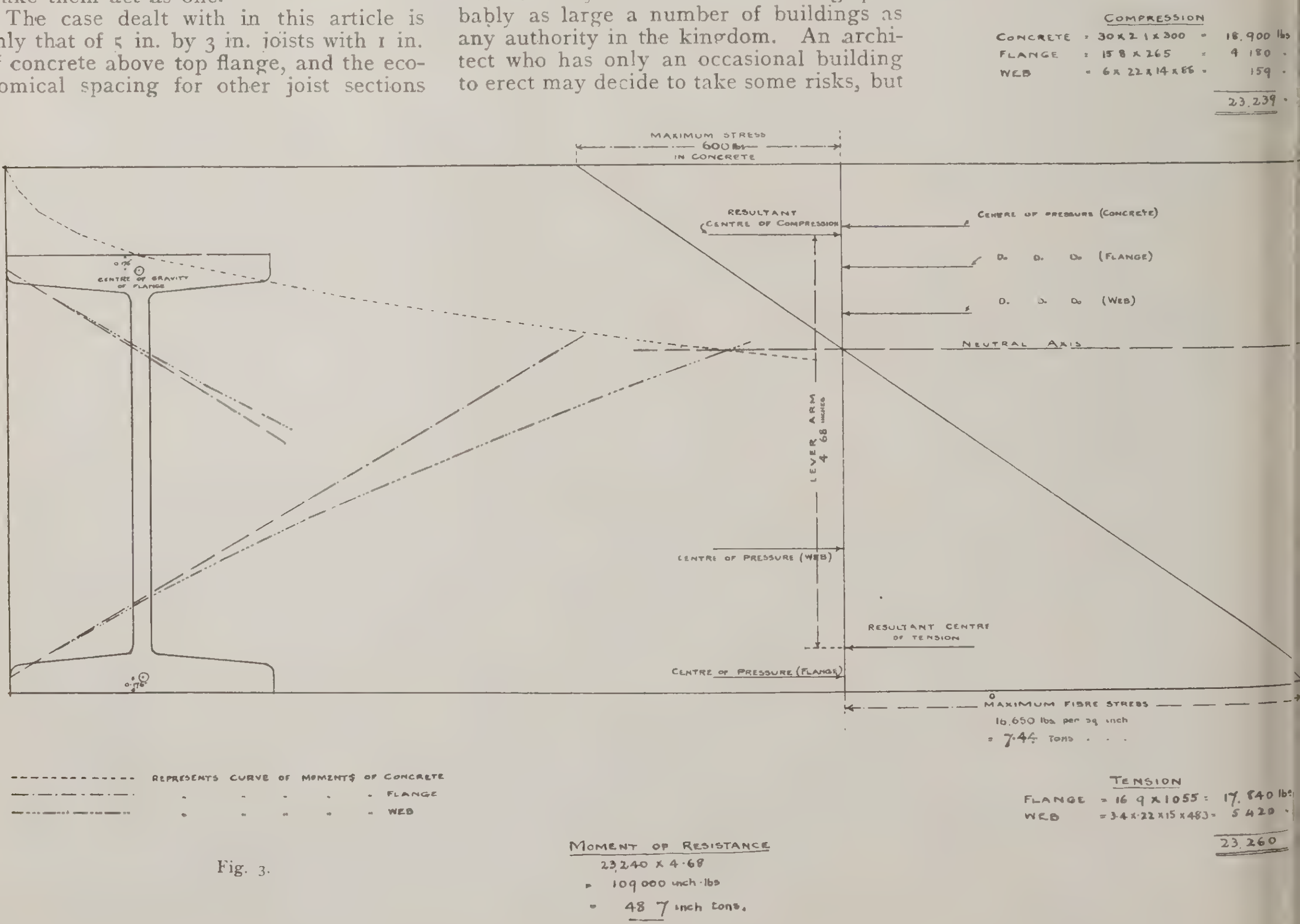


Fig. 3.

CENTRIC LOADING OF COLUMNS.

T S. ANDREWS, B.Sc.Eng., M.C.I.

ded from page 107, *No.* 1052.)

Column Fixed at both Ends.

present instance we have not ing the deflection at E back to imagining the support to be but we have also to make the zero.

B_E (Fig. 5) be the bending nduced at E to keep the slope , the deflected form of the ing as indicated in dotted lines. e at the end of a cantilever is al to the area of the bending iagram.

g. 2, the slope due to the bend- nt We applied at C will be B.M. diagram being a rectangle. ring that the angles are very $E\,I.\,\theta = \text{Web}$.

pe contributed by B_E will be esented by $B_E.\,l$ and by R_E by , the B. M. diagram for R being

ave $\text{Web} = B_E.l - \frac{1}{2} R_E\, l^2$. (12)

g alone would cause a deflection $\frac{{}_E\, l^2}{E\,I}$, opposite in direction to by the reaction.

n equation (6) $\frac{R_E\, l^3}{3\,E\,I} - \frac{B_E\, l^2}{2\,E\,I} =$

$\frac{+\ b)}{E\,I}$. W eb.

$= \frac{3(2a + b)\,W\,eb}{2\,l^3} + \frac{3\,B_E}{2\,l}$

$= \frac{3(1 - x^2)\,We}{2\,l} + \frac{3\,B_E}{2\,l}$ (13)

2) $R_E = \frac{2We\,(1 - x)}{l} + \frac{2\,B_E}{l}$ (14)

3) and (14)

$$\frac{B_E}{2\,l} = \frac{We}{l}\left\{\frac{3(1 - x^2)}{2} - 2(1 - x)\right\}$$

$$\therefore B_E = We\,(1 - x)\left\{3 + 3x - 4\right\}$$

$$= We\,(1 - x)\,(3x - 1) \qquad (15)$$

Putting this in (14)

$$R_E = \frac{2\,W\,e\,(1 - x)}{l} + \frac{2\,W\,e\,(1 - x)\,(3x - 1)}{l}$$

$$= \frac{W\,e\,(1 - x)}{l}\left\{2 + 2\,(3x - 1)\right\}$$

$$= \frac{6\,W\,e\,x\,(1 - x)}{l} \qquad (16)$$

Now the bending moment B_D at the other end will be equal to $B_E - R_E.\,l + We$, *i.e.*,

$$B_D = We\left\{(1 - x)(3x - 1) - 6x\,(1 - x) + 1\right\}$$

$$= We\left\{1 - (1 - x)\,(1 + 3x)\right\}$$

$$= We\left\{1 - (1 + 2x - 3x^2)\right\}$$

$$= We\left\{3x^2 - 2x\right\}$$

$$= We\,x\,(3x - 2) \qquad (17)$$

Values of *m* corresponding to equations (15) and (17) are plotted on one diagram in Fig. 6; for B_D values of the fixing coefficients are read from the left-hand scale and values of *x* from the bottom and for B_E values of the fixing coefficients are read from the right-hand scale and values of *x* from the top.

Immediately above the bracket, the bending moment is equal to

$$B = B_E - R_E.\ xl$$

$$= We\,(1 - x)\,(3x - 1) - 6\,We\,x^2\,(1 - x)$$

$$= We\,(1 - x)\,(3x - 1 - 6x^2)$$

$$= -\ We\,(1 - x)\,(6x^2 - 3x + 1) \qquad (18)$$

Immediately below the bracket the bending moment is equal to the above plus We.

i.e. $B = We\left\{1 - (6x^2 - 3x + 1)\,(1 - x)\right\}$

$$= Wex\,(6x^2 - 9x + 4) \qquad (19)$$

Values of the fixing coefficient *m* corresponding to these results are plotted in Fig. 7.

In any specific case we should take for *m*, in our formula (3) for finding the combined bending and compression stress, the greater of the values for B_D—(given by Fig. 6) and for below the bracket (given by Fig. 7). It is only the numerical value which matters as a general rule; the sign only affects the question as to on which side of the column the maximum stress comes. Above the bracket there will be no direct compressive stress distributed from the load, so that for that portion the maximum stress is given by:—

$$c = \frac{m\ W\ ed}{A\ k^2} \qquad (20)$$

It is a debateable point as to whether this value of c should be taken up to $7\frac{1}{2}$ tons per square inch for mild steel as allowed for bending or whether it shall be determined by the safe stress given by the pillar formula. This point requires further investigation.

As a specific example take $x = \cdot25$. Fig. 6 shows, for B_D, $m = -\cdot31$; Fig. 7 shows below the bracket $m = \cdot53$, so we should use $m = \cdot53$ in formula (3) to obtain the combined stress, which must not exceed the safe stress given by the pillar formula according to the usual ruling.

Considering above the bracket, Fig. 7

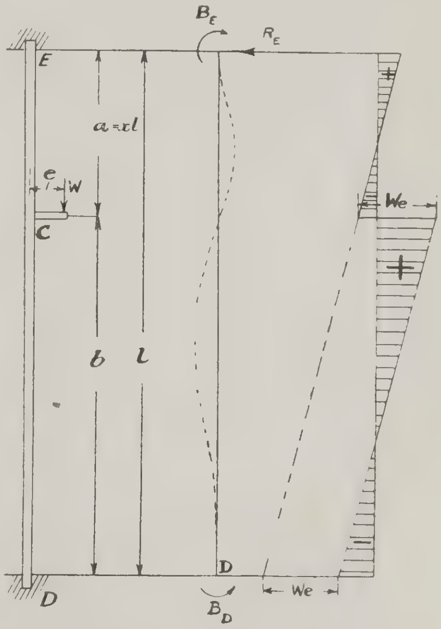


FIG. 5

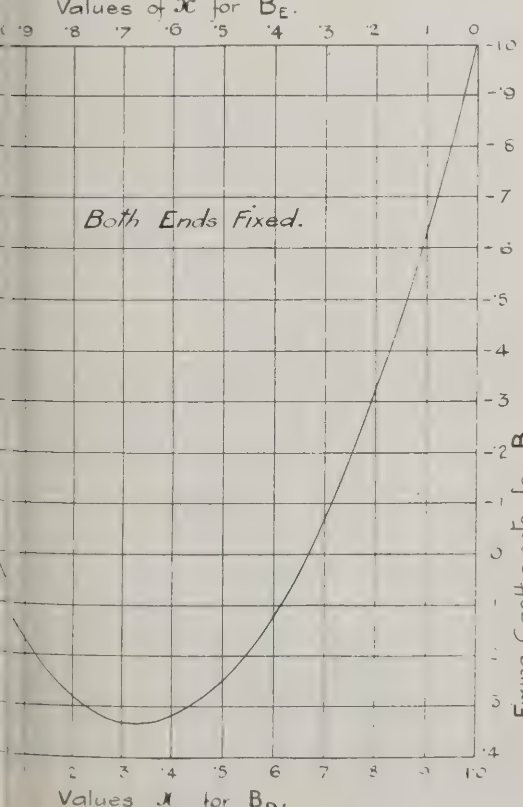


FIG. 6.

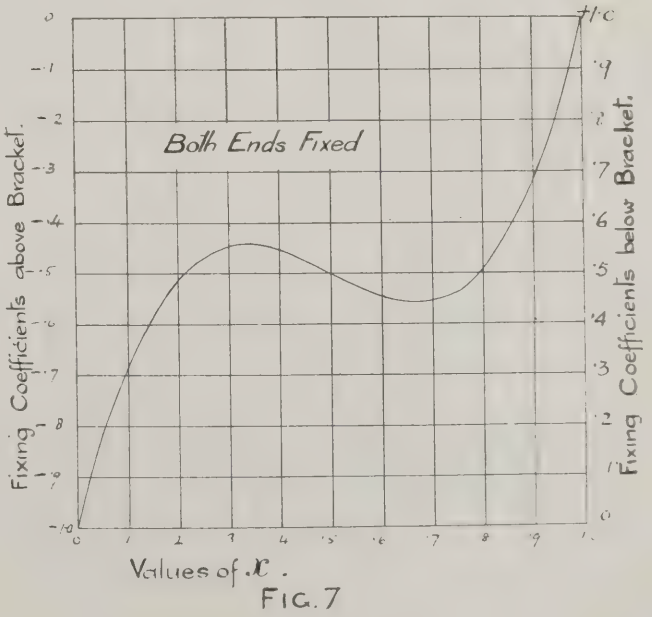


FIG. 7

gives $m = -\cdot47$ and Fig. 6 gives for B_E $m = -\cdot2$; these are both less than before, and so they cannot make the value of the stress by formula (20) exceed that for just below the bracket.

POINTS IN CONCRETE MIXING.

In the second of a series of six articles on " Mechanical Disintegration of Defective Concrete," by Mr. Nathan C. Johnson, in the " Engineering Record," the author thus summarises some important points with respect to the mixing of concrete:

1. That concrete structures in which proper care has not been exercised in selecting aggregates, or in mixing and placing, are honeycombed by millions of pores of greater or less size, formed by the occlusion of air in the cement matrix.

2. That these pores are adapted to promote by capillary action the penetration of water below the surface layers.

3. That when water is brought by a capillary pore, aided by absorption, or adsorption, or both, into contact with a group or groups of the unhydrated cement particles that exist in all concrete, new reactions with new volumes are probably set up in the rigid matrix of set cement.

4. That these reactions may cause disruptive stress to be exerted on the cement matrix of the concrete, producing " shear planes " or " slip bands " as evidence of the local failure thus produced.

5. That " shear planes " and other evidences of local failure by disruption, whether resulting from the hydration of cement or from other causes, have their origin in a minute pore, or fissure.

6. That other disintegrating actions are produced by water entering through pores into the mass, by reason of this water, whether fresh or loaded with chemically-active salts, dissolving portions of the cement matrix.

7. That when such entering waters are sufficiently saturated with soluble compounds, deposition in crystalline form takes place, with tremendous disruptive forces exerted on the surrounding material, i.e., the cement matrix.

8. That these disruptive forces pressing on the walls of the confining pore produce one or more fissures in the matrix, and that these fissures, in turn, act as capillary passages, with repetition of seepage, crystallisation, and wedging, the crystalline water filling in as the passages lengthen and widen, until a group of hard, disruptive progressing dikes effect actual disruption.

9. That this action is not confined to concretes exposed to sea-water, but affect other concretes, such as fresh-water dams, filter beds, buttress walls, sidewalks, etc., where defective materials or construction permit the entrance of water into the mass.

10. That the responsibility for concrete failures of many kinds need not necessarily rest solely upon the cement, but that other factors, such as proper choice of aggregates, efficient mixing, proper consistency and care in placing must be held equally responsible, since through these latter come the inducing causes of failure.

EFFECTS OF SHELL-FIRE ON STEEL-CONCRETE CONSTRUCTION.

A sheet of illustrations, published by the Expanded Metal Company, Ltd., of London and West Hartlepool, forms an interesting memento of the cowardly bombardment of West Hartlepool by the Germans on December 16, 1914. In the first picture are shown half a dozen unexploded shells, giving an impressive idea of the formidable character of the bombardment, of which the other illustrations show the effects on expanded steel concrete structures that happened to get hit. Out of this ordeal this material has come so well as to lend colour to the German contention that West Hartlepool is a fortified town! In several instances, fragm shell damaged the concrete skin penetrating the expanded-steel rei ment; and the illustration here duced by courtesy of the publisher a further striking demonstration strength of this system of construct

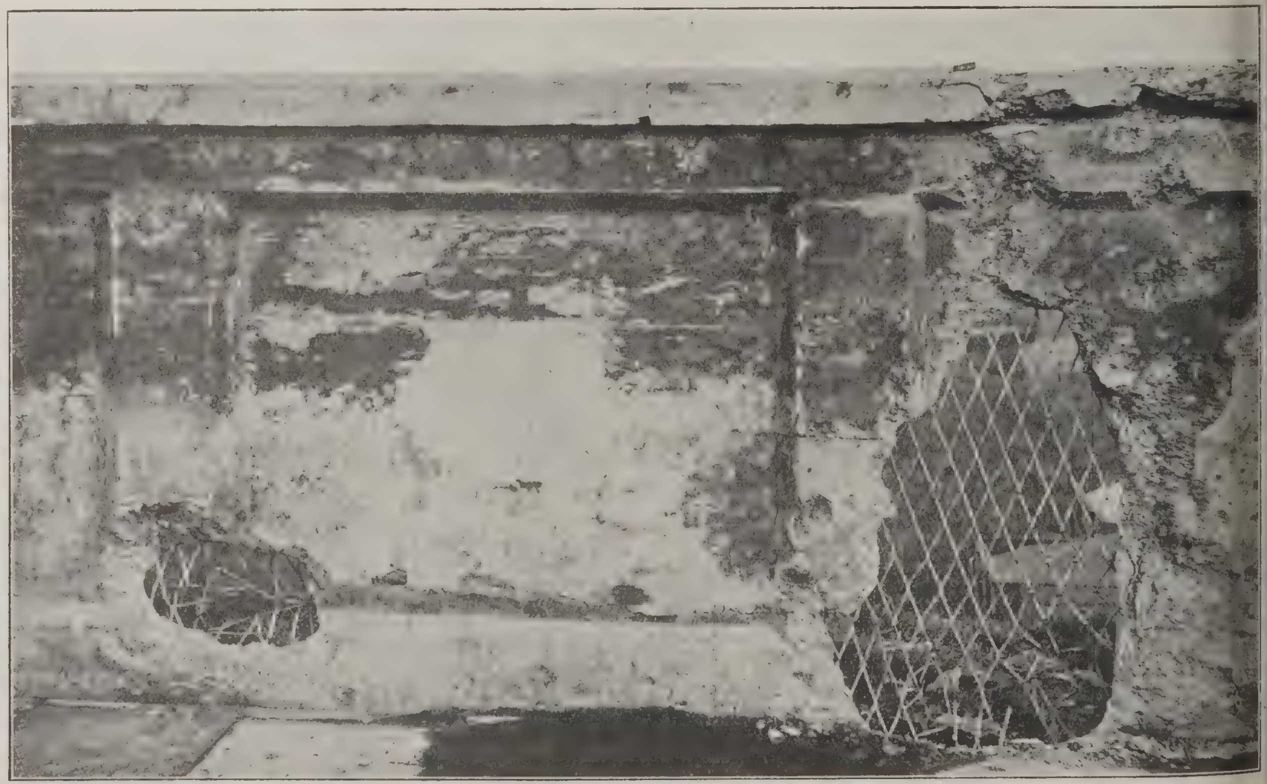
CARDIFF EMPIRE THEAT

The directors of Moss Empires have decided to rebuild the Cardiff Theatre at a cost of over £20,000.

Some time ago the adjoining pr was acquired, and the additional makes it possible to have a new rium 90 ft. wide. The whole of th are to be reconstructed and rebuilt crete, and the accommodation w increased from 1,800 to 2,800. A feature will be a new elevation on Street and all the existing premis abutting on Queen Street are to built. A Press description states th front elevation is to be carried out i land stone in a fine Classical style, bold recess on the second floor fo ing effects. This recess will be fa stone columns with Ionic capita whole to be surmounted by a ha cornice and carved pediment."

Another feature of the new build be a very handsome marble staircas ing up to the circle waiting saloons a particularly spacious character, rated with Corinthian columns capitals. In the rebuilding the lat provements will be made in the appliances. The interior will be rated in a Grecian style, and the up ing and draperies will receive most attention. The electric lighting carried out by the chief engineer Moss Empires, Ltd. (Mr. H. W. Ha

The contract for the rebuilding h let to Messrs. E. Turner and Sons Cardiff, the architects being William and T. R. Milburn, of land.



VIEW SHOWING EFFECT OF GERMAN SHELL ON THE BOUNDARY WALL OF THE NORTH EASTERN RAILWAY AT WEST HARTLE

R.I.B.A. EXAMINATION RESULTS.

The Final: Designs Approved.

oard of Architectural Education announce that the submitted by the following Students have been :—

SUBJECT XIX.

(a) A Memorial to Lord Roberts.

. C.
C. J.
C. C.
. W.
ım, G. R.
F. C.
R. A.
. C.
S. C.
R. D.
Harrison, H. St. J.
Hendry, M.
Hull, V.
Hutton, L. D. H.
Jopling, A. B. B.
Knight, W. J.
Lawson, J. Scott.
Lyne, D. R.
Mitchell, C. H.
Munguia, G.
Riexa, F.
Sanders, T. A.
Spence, W. N.
Stevens, F. J.
Tubbs, G. P.
Vonberg, W. C.
Wood, A. G.
Woodhouse, F. P. M.

(b) A Garage for a Large Country Mansion.

L. D. A.
ı, J.
on, W.
J. R.
P. J.
Holden, W.
Keep, N.
Mitchell, C. H.
Philp, A. T.
Picton, C. S.
Roberts, E. W.
Sunter, M. C.
Tanner, A. S.
Vinden, G.

s for other subjects, from the following candidates, been approved:—

Kellock, A. D.
Fisher, H. N.
Hemm, G.
Omar, I.

SITY OF LIVERPOOL: CHAIR OF CIVIC DESIGN.

ouncil of the University of Liverpool invite applications Chair, which is associated with the School of Archi-

duties of the Professor will commence and the appoint- e from October 1, 1915. The appointment will be for rs, the period during which the endowment of the secured.

stipend of the Chair is fixed at £400 per annum. The will be allowed, but not required, to become a con- o the superannuation scheme.

Professor will be required to reside during the Autumn Terms of each session, from the beginning of October the end of March, with three weeks' vacation at ıs. He will be responsible (*a*) for the conduct and of research into the problems connected with the design lopment of towns; such research being held to include uction of drawings of schemes for the treatment of oroblems, as well as critical and historic surveys of work; (*b*) the publication of the results of this research; rovision and supervision of instruction on the subjects hair; (*d*) to take such part in the degree and other tions of the University as the Council, on the recom- n of the Senate and the Faculty of Arts, may deter- d to hold or be responsible for such terminal examina- he Faculty may approve.

Lecturer, also holding a Research Fellowship, is asso- ith the work of the department. There are several cturers taking single courses of lectures.

Professor will be allowed, while in residence, to carry ractice of his profession on conditions already deter- y regulations. Such work, however, must be under- ly to such an extent as shall not interfere with the duties ıair.

ıdidates are expected to give a detailed statement of already executed or projected by them, to accompany lans and drawings, and to supply details of published n work.

plications, together with the names of three persons to ference may be made, and twelve copies of not more testimonials, should be forwarded to the Registrar, ward Carey, on or before May 10, 1915. Original ts should not be forwarded.

needa" Patent Self-Adjusting Casement Stays.

ly to several enquiries, it should be stated that the of the "Uneeda" patent self-adjusting casement stays, an illustrated notice appeared on p. xiv. of our issue h 24, are The Linolite Fittings Company, 25, Victoria London, E.C. Telephone, 244 Victoria; telegrams, lite, Vic, London."

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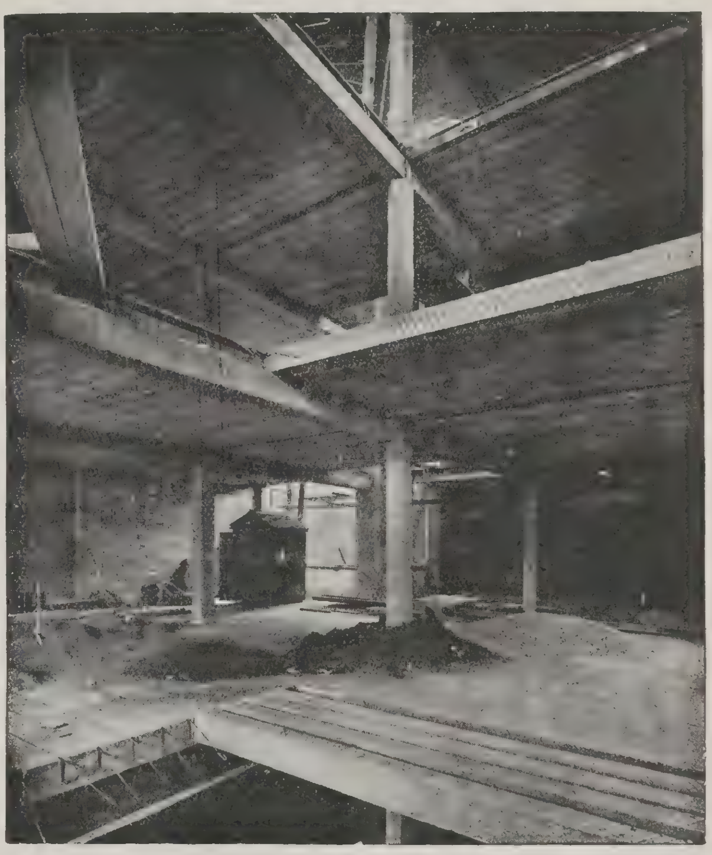

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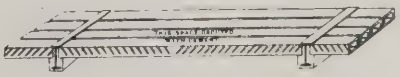

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Staff Officer, R.E.
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Headquarter Office, Aldershot.
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Architects, Messrs. Dod & Dod, D16,
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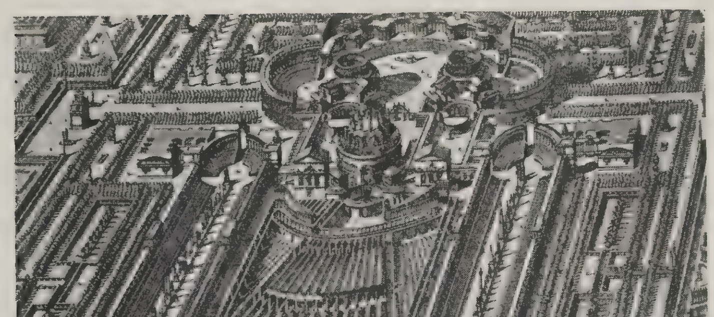
No. 130.



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 7, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 10

EDITORIAL.

BUILDERS suffer more than any other class from the evils of municipal trading in its various interesting phases, and they do well to seize promptly every occasion for protesting against it. An objection lodged by the local master builders' association against some unspecified instance of the practice furnished by the Scunthorpe Urban District Council is chiefly remarkable, however, for the extraordinary hardihood of the retort is provoked from the chairman of the Council, who is reported as contending that "the Council should have the same privilege as an individual, and, so far as it could, should do its own work." This is obviously no answer to the master-builders' argument that public money should not be used in competition against local traders, which we take to be a perfectly clear, definite, and irrefragable statement of the principle that is involved. As, in arguing a similar case, a master-builder once put it in terms that are not more homely than graphic, "it is monstrous that a builder should be fried in his own fat."

* * * *

In other words, it is peculiarly obnoxious to a ratepayer to feel that he is contributing to capital that, in a sense, will be used against him competitively; for that is what actually occurs when public funds are used in the direct employment of labour. If it "pays," it is unfair competition; if it does not "pay" there is no justification for it, and then the competition is not only unfair but futile. In any case, to say that a council "should have the same privilege as an individual" is to advance an entirely baseless assumption, if it means that a public body is morally justified in pitting public funds against private capital, to the injury of the businesses that provide the money: which is precisely what occurs when a corporation does work for which tenders should be invited. In the instances in which corporations have gone beyond this point, and have actually opened shops for the sale of fittings and so forth, the injustice has become so flagrant as to supply its own antidote; but in cases like that at Scunthorpe the abuse is so much less palpable that, as we have seen, there are those who seek to justify it. We trust that the Scunthorpe builders will return to the charge with redoubled energy.

* * * *

That municipal housing schemes—which, though apparently they do not come into the question at Scunthorpe, are nevertheless in the same category of corporation undertakings—usually turn out unprofitably, the bulk of the available data proves conclusively; and we are glad to see that this peculiarity is mentioned in an article on "Building as Business" in a recent issue of "Kemp's Mercantile Gazette," in which our contemporary has a good word to say for the much-abused speculative builder. "In some localities," it is remarked, "the Councils take a turn at building under
contract, but the result usually is, that to recou
selves they have to put on rents which few ca
pay, and the end is commonly a large loss to th
Confirmation could be found, we think, in the
annals of the London County Council, which,
has a better excuse for its housing operation
contract than was forthcoming when it
disastrous experiment with the Works Departm
doubt our contemporary is safe in assuming t
one else but a speculative builder can put up h
a price for sale which will pay a profit, o
occupation, can be let at popular rentals"; b
remains the equally cogent fact that there are
stances in which the speculative builder
reluctant to meet a crying need for houses. H
a philanthropist—or, rather, he cannot afford t
business with benevolence. A corporation
labour under this disqualification, and can affo
philanthropic—at the ratepayers' expense. T
in fact, occasions on which municipalities are f
undertake housing operations; and, as we have
on previous occasions, housing may be, and is,
three systems which easily co-exist without
It is often merely a question of local or tempor
tions whether the demand for houses is met by
effort, speculative enterprise, or public oblig

* * * *

Now one and now another agency gains
ascendancy, but there is very little overlapp
hardly any rivalry, although the speculative b
rather apt to cry out when he is superseded. A
he should know very well that in most
instances he would not, and could not, have un
the work of which he complains, he finds it a
relief to his feelings to blame a personified su
such as a private owner or a municipal cor
rather than such a vague abstraction as "e
conditions." Corporations may have no souls
abstraction has no body, and there is no
kicking against it—as lieve speak disrespectful
Equator. For the moment, the speculative b
sitting idly on the fence, and housing is lef
completely in the hands of public authorities;
the more reason why they should prosecute
courage and vigour—not. of course, by means
labour, but in the legitimate way of securing
for contracts.

* * * *

Everyone regrets the retirement, at the age
two, of Sir Laurence Gomme from the pos
Clerk to the London County Council. To say
was a dominating influence on that wayw
fickle body might be to thrust upon him a b
responsibility which no man of his bland temp
fine texture, and scholarly mind would care to
but nevertheless his personality has been.

and controlling force, at least a leaven in the ıs mass. A many-sided man, whose recrea- ıvowedly "change of work," he brought n accomplishments to the rather prosaic clerk. As folklorist, anthropologist, anti- lecturer on the principles of local govern- on economics. author, editor, he has known ake all his attainments as man of science and tters subserve a love of London which is in his r he is a born Londoner. and a descendant of enerations of Londoners. Moreover, he was at the City of London School contemporane- h the present Prime Minister, and had for his c appointment a post as assistant clerk to the ıority in Fulham, afterwards entering the the Metropolitan Board of Works.

* * * *

ırence therefore knows his London practically ıs archæologically. and has neither allowed ip to interfere with the efficiency nor official dim that broader and finer outlook which, ng the soul and spirit of London, has for us many interesting reminders that nas a history. It cannot be doubted that to or of the fascinating little book on "The of London" we are largely indebted for the rather exemplary attention to the collection rvation of topographical records which have coincided with his fifteen years of service. st meeting of the Council before the Easter , Sir Laurence was justly described as a ndoner and a model civil servant. In his elected Mr. James Bird, the Deputy Clerk, inherits a splendid tradition.

* * * *

ıitecture as an Expression of National " is a brave title for a single paper read "literary and scientific society," but Dr. on, who did this deed of daring at Birken- ne off with a good deal of credit. In a tour Greece, Asia Minor, and Egypt, it seems, nuch impressed by the strong correspon- tween racial characteristics and styles of In the temple of Karnak he saw the of matter over mind, the Egyptians, he eing impressed with the idea of bulk, but ıg it in an unintellectual way. Egypt's on, he said, was held from first to last ondage of strict routine, and from almost tian sculpture there was an absence of the and ideas of the human mind, and a ss of intellectual insight and intellectual With this opinion, as Dr. Harrington o be well aware, few architects would un- y agree. True, the lust of conquest and on, and the exaltation of tyranny and which were prominent characteristics of ime-long dynasties, have found a natural in Egyptian monuments, which, however, be credited with more estimable qualities expression of mere "frightfulness." Sim- epose, grandeur of scale, and a certain of general effect, have given Egyptian ure a prepotency of influence to which Dr. on's observation does scant justice.

* * * *

ırrington was more happy in his refer- he architecture of Greece. Here he found en intellectual vitality which five thousand Egypt had not produced." Perhaps the udden" may pass in a comparison of the ntellectual development of Egypt and that e, although this admission of "sudden- ust not be allowed to obscure the antiquity culture, which, whether or not it was based on the importation by the Phœnicians of Egyptian, Assyrian, and Babylonian ideas, goes back a thousand years and more before the Christian era. Its development after the Persian wars may perhaps justify the word "sudden." In regarding the Doric temple as the supreme illustration of his proposition that "the more perfect the æsthetic arrangement, the more inevitable will be its ethical effect," the lecturer had in mind the Parthenon; but we could have wished that, in addressing a mixed assembly, he had insisted less on the perfection of the earliest of the Orders, and had conveyed a more vivid impression of the graces of Ionic and the elegance of Corinthian, and of the affinity of all three to modern intellectual progress. Nevertheless, we warmly welcome the awakening general interest in architecture which the subject of the lecture and the scene of its delivery seem to suggest.

* * * *

It is reported by house-agents that, as a result of conditions created by the war, there has arisen a large demand for small houses in London, as well as for flats. Many people, it would seem, are taking up temporary residence in London as a centre of immediate information as to events abroad, and as the most convenient rallying point for a society that feels the need of closer and more sympathetic unity. There is also to be taken into account the patriotism which has led so many wealthy people to give up their country houses for use in the country's service, or as homes for refugees. Further, the need for retrenchment, the temporary abandonment of the ordinary pursuits of country life, the present inconveniences of foreign travel, alike point to London as being for the occasion what our friend the estate-agent would call "a highly desirable place of residence." Economy and concentration are also considerations that are inducing the business man to get into closer touch with town, and to save the expense in time and money of the long railway journey, or urging him to relinquish the search for a chauffeur in substitution for the smart young fellow who has gone to the Front. It is not surprising, therefore, to learn that the demand for houses up to £150 a year in London or the near suburbs is distinctly good, and that the demand for houses at £50 is excessive. These are indications that the alert architect may profitably ponder, for they are likely to take some considerable degree of "permanent set." Smaller houses will be the order for some time to come, and they will be of superior class.

* * * *

One probable effect of the war—that of rubbing away the last vestiges of our insularity—was suggested in rather happy fashion by Mr. Thomas H. Mawson in his lecture at Darwen on "Athens, Old and New." It was the Grand Tour, he recalled, which gave England its only architectural sense at a critical period. Now, said the lecturer, in effect, we are making the Grand Tour on a much grander scale. Recently he had seen groups of Lancashire soldiers gazing with admiration on the college buildings in Cambridge, and contrasting them, doubtless, with the kind of architecture with which they were familiar in Lancashire. Two millions of men, going into France, Belgium, and probably into other countries, will bring back with them the influence of their travels. It might have been added that this is the more likely since quite a tangible fraction of these Grand Tourists are impressionable young architects, God speed them! If, after their triumphant return, we do not attain to that full measure of cosmopolitanism in architecture towards which we have been steadily tending in times of peace, our insularity will be regarded as incurable.

HERE AND THERE.

THE task of reviewing Mr. Lenygon's book on Later Renaissance Decoration in England does not fall upon me, but having that sumptuous work in my hands I cannot allow the occasion to pass without abstracting some information that has especially caught my attention. There is, first of all, the Dilettanti Society. This figures regularly in all the architectural histories, wherein we read much about lordly patronage, the discovery of new artists, like Kent, who become the *furore*, and the commissioning of excavations and investigations on foreign sites. Here is a typical sample: "In the meantime the powerful Dilettanti Society lent their aid, and provided funds for visits, explorations, and publications of the results obtained. Under their auspices the fourth volume of Stuart and Revett's work appeared in 1816, and among other publications for which they were partly responsible are 'The Antiquities of Ionia,' Wilkins's 'Magna Græcia,' Penrose's valuable treatise on the Parthenon, and Cockerell's 'Ægina and Bassæ.'" But there is a very human side to all this scholarship, at least in the early part of the Society's existence, and Mr. Lenygon gives us an intimate glimpse of it. The Society, originally in the form of a private Club, was one of the results of that habit of making the Grand Tour in the eighteenth century, when Italy was ransacked for pictures, statues, and curiosities; to such an extent, indeed, that Lord Chesterfield thought it necessary to warn his son against viewing Italy "knick-knackically." The Society, founded by five gentlemen about 1732, had as its object "the encouraging at home a taste for those objects which had contributed so much to their entertainment abroad." Mr. Lenygon reminds us that the name had not then any trace of its acquired modern stigma. The Society was a useful committee of taste, an adequate board of patronage, but I like especially the citation from Walpole—that the qualifications for membership were drunkenness and a visit to Italy. The last qualification was really essential, though some of the members combined both. "The two chiefs, Lord Middlesex and Sir James Dashwood, were seldom sober the whole time they were in Italy." One of the rules of the Club was that no one could be proposed unless by a member who had personally known him in Italy. After one election it was discovered that the proposing member had met his friend at Avignon, whereupon the resolutions were passed, first, "that it is the opinion of the Society that Avignon is in Italy"; secondly, "that no other town in France is in Italy"—resolutions only valuable as an index to the relative importance of France and Italy in the English taste of the day. France was not "classic ground."

* * *

There are frequent references in Mr. Lenygon's book to contemporary opinion on some of the fashions in decorations during the eighteenth century—such as the fashion for Chinese frets and ornaments, and those queer *chinoiseries* and *singeries*. On Sir William Chambers is often put the onus of introducing the Chinese craze which broke out so strongly in furniture and in decoration; but, as Mr. Lenygon points out, he was the critic rather than the creator of the movement, and his book was published with the idea that its careful illustrations should be "useful to our cabinet-makers, and put a stop to the extraordinary fancies that daily appear under the name of Chinese, though most of them are mere inventions, the rest copies from the lame representations found on porcelain and paper-hangings." Sir William Chambers was, in fact, a bulwark against a good deal of the looseness in the
styles prevalent in the latter half of the eigl
century. It was Chambers who popularis
simple chimneypiece in England, and one
results of his labours was that chimneypieces
soon made by manufacturers such as Pickfc
Carter, and sold like furniture to the owr
houses, rather than designed by the architect
the character and proportions of the room
the house was being built"—a dangerou
cedent though. And Chambers came out es
strong at the head of the architects who o
to Wedgwood's innovation, as we may judg
the potter's plaint, that "instead of bein
fathers to our child, instead of taking it by th
and giving it their benediction, they cursed t
infant by bell, book, and candle, and it mu
a hard struggle to support itself an
under their maledictions." As events turn
however, Wedgwood, under Adam's pat
seems to have made a very successful busine
his plaques and his pottery. There is a grac
about them, and the white figures against their
brown background are pleasing enough, but a
was a gentle lifeless sort of art, and quite super

* * *

There is no gainsaying that the word
tical" goes straight to the heart of the great
Public, and, being fully aware of that fa
small tradesman delights to paint up the wor
ever he can; which explains the legend o
shop window, "Practical Bootmaker," "P
Plumber," "Practical China Repairer," des
impossibility of these workers being othe
practical. But I have never yet seen the
scription "Practical Architect" on the nam
The architect may or may not be a practical
I took occasion some time ago to explain
may be taken as certain that the building w
gathering unto himself all the virtue that
shrined in the magic adjective, is not likely
of the architect as one well versed in what
practical. He may know a lot about design
architecture on paper, but what does he kno
pipe connections or the best way to get rid c
draught in the drawing-room flue? Son
however, the workman gets a shock i
matters, and henceforth he has more respec
architect's knowledge. The theme is deve
see, by an architectural correspondent in on
Canadian building papers, replying to a ch
inefficiency in architectural practice. "Th
tical man," he says, "even though he be a
neer and a really skilled constructor (which
called practical man as a class or a type empl
is not), cannot and does not give us archi
The very best he can produce is sound buildi
the other hand, the despised artist type,
if a graduate of a good European or A
school of architecture, can and usually does
clients sound and even clever planning and a
able grouping and detailing of parts, and h
fails to produce infinitely better results t
self-made man who knows little if anything
the merest rule-of-thumb methods and i
sarily utterly ignorant of planning. On th
hand, though the school man may not be
push a wheelbarrow, he is quite able to jud
such important things are well done. As a
of fact, it is quite well known that the s
practical man type does very rarely evol
spectable architect, whereas the notable su
as well as the bulk of architects of a fair
capacity, must come from the schools whi
can give the higher education." And suc
are as true in England as they are in Canad

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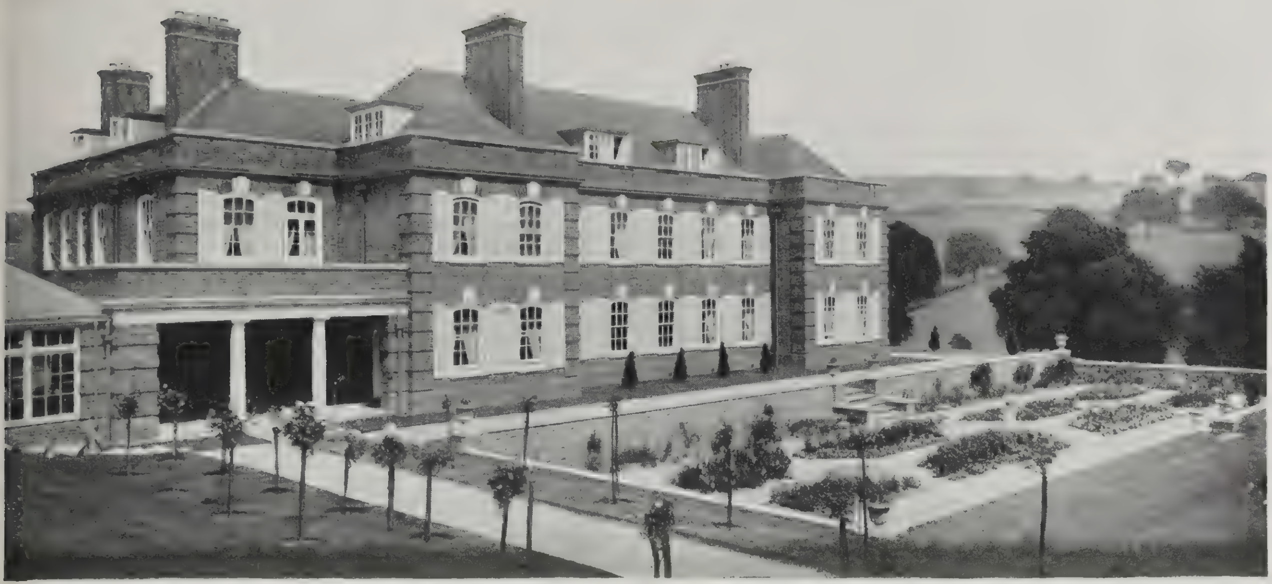
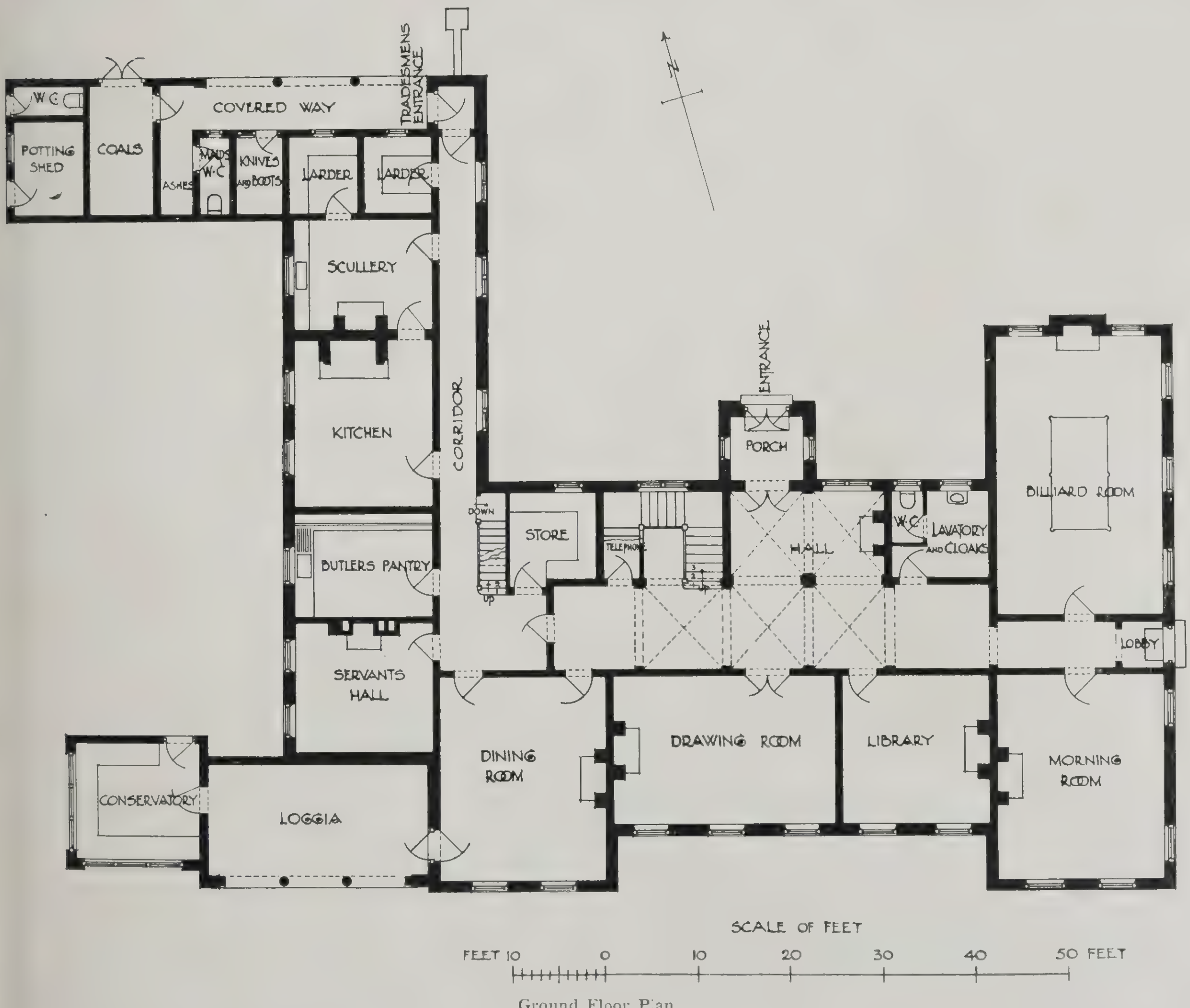


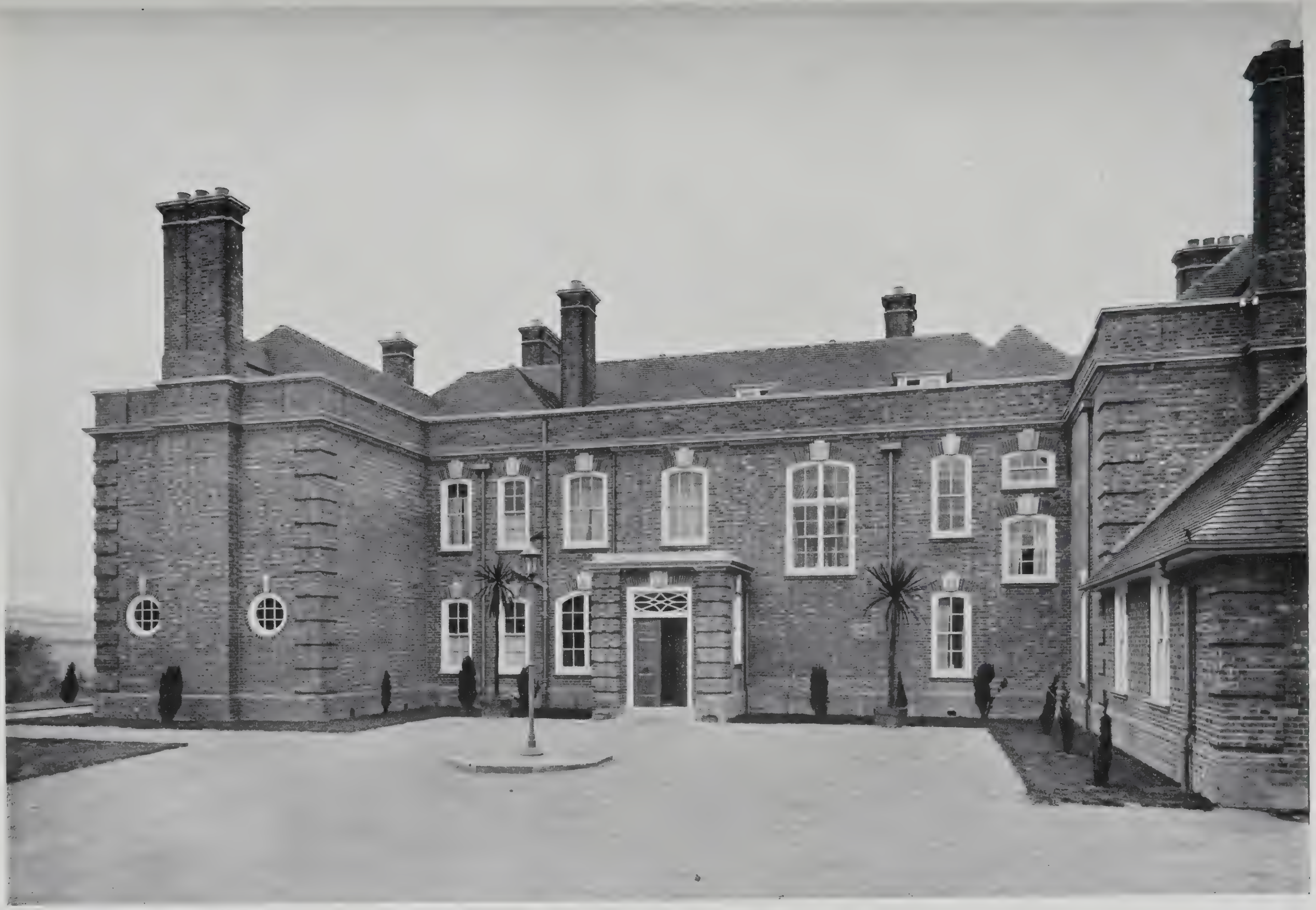
Garden Front.



Ground Floor Plan.

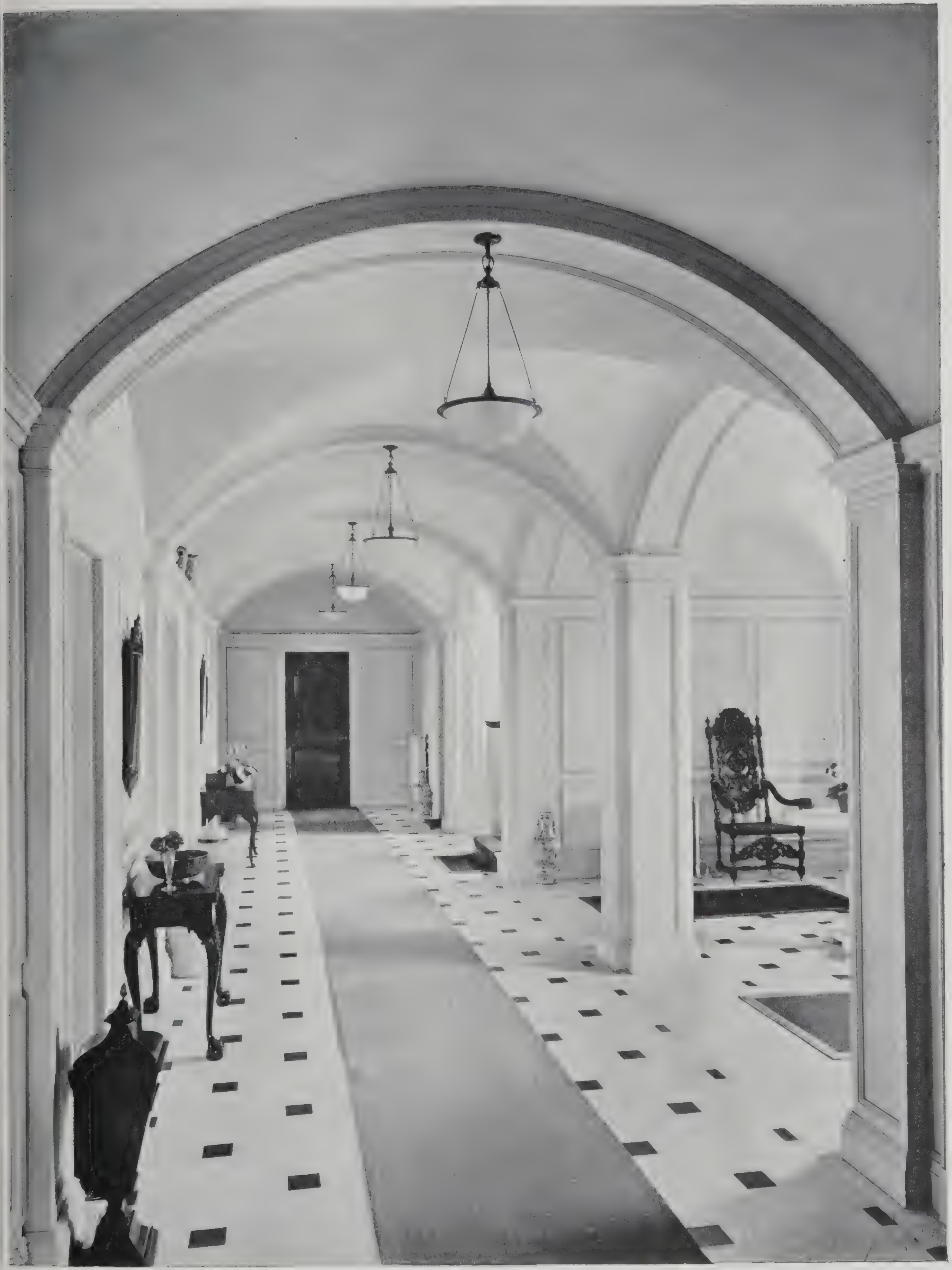
MODERN DOMESTIC ARCHITECTURE (SERIES II.). VII.—"ELLOUGHTON DALE," EAST YORKSHIRE.

JOHN BILSON, F.S.A., F.R.I.B.A., ARCHITECT.



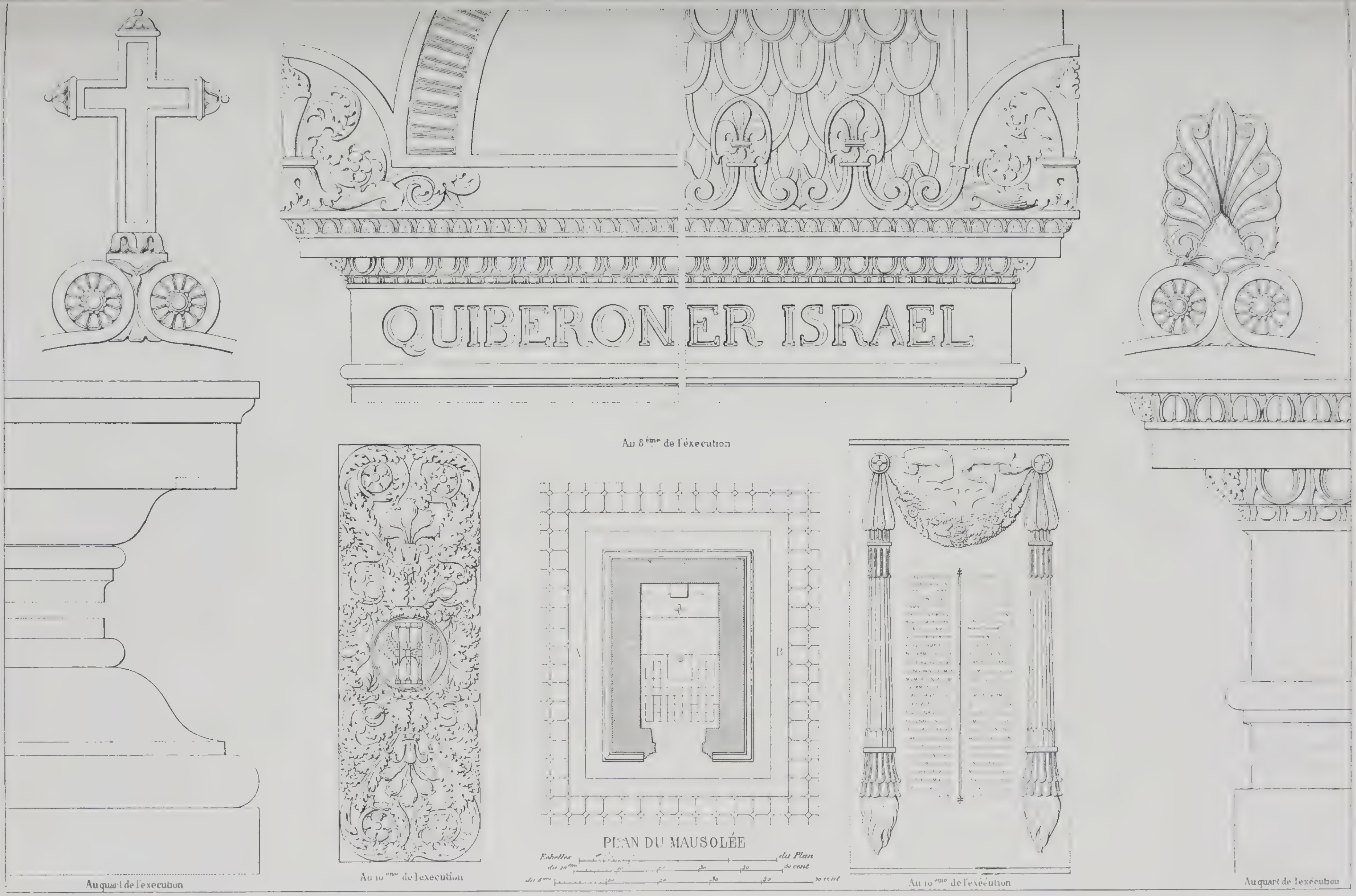
MODERN DOMESTIC ARCHITECTURE (SERIES II.). VIII.—"ELLOUGHTON DALE," EAST YORKSHIRE: ENTRANCE FRONT.

JOHN BILSON, F.S.A., F.R.I.B.A., ARCHITECT.



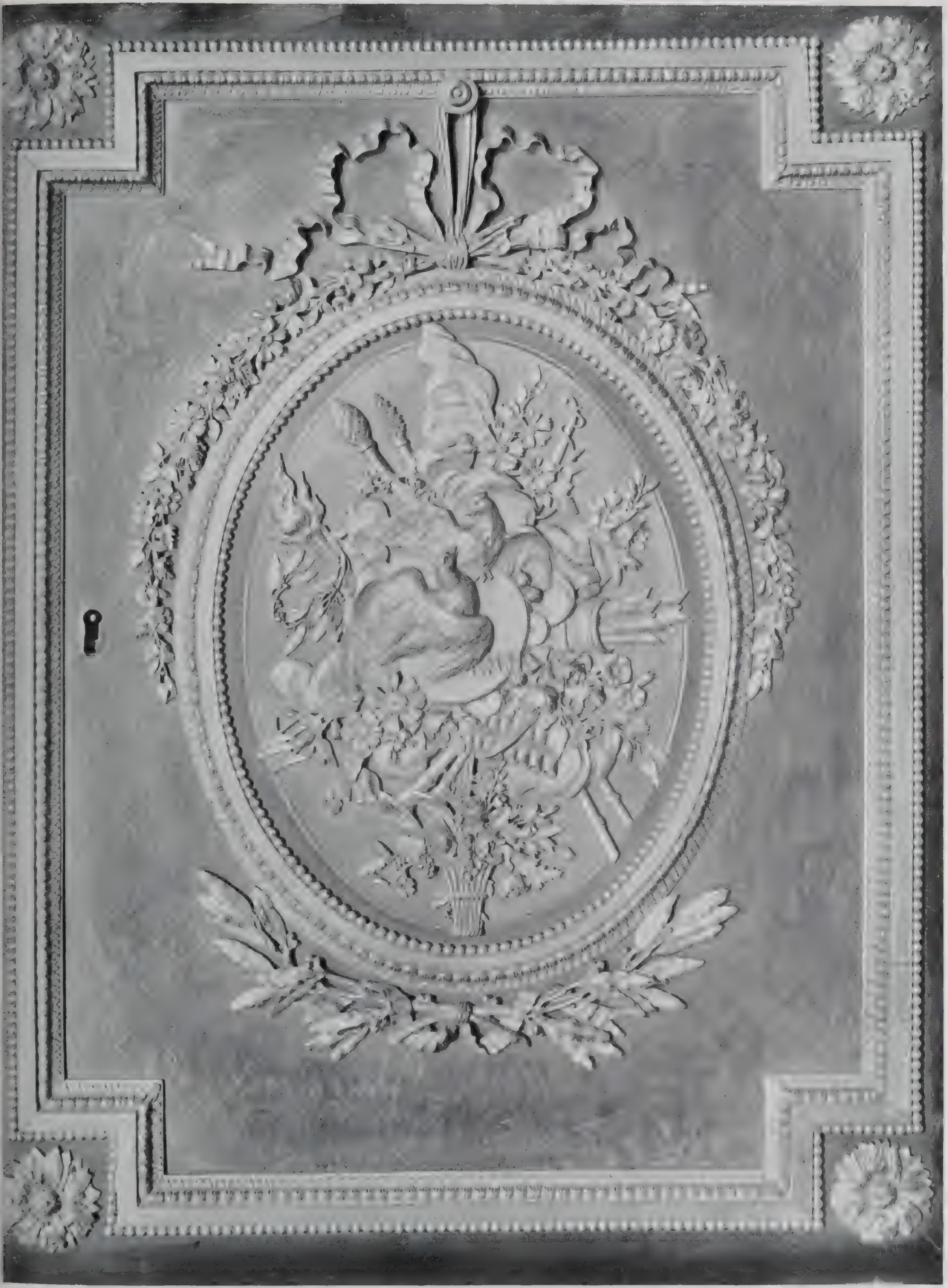
MODERN DOMESTIC ARCHITECTURE (SERIES II.). IX.—"ELLOUGHTON DALE," EAST YORKSHIRE: ENTRANCE HALL.

JOHN BILSON, F.S.A., F.R.I.B.A., ARCHITECT.

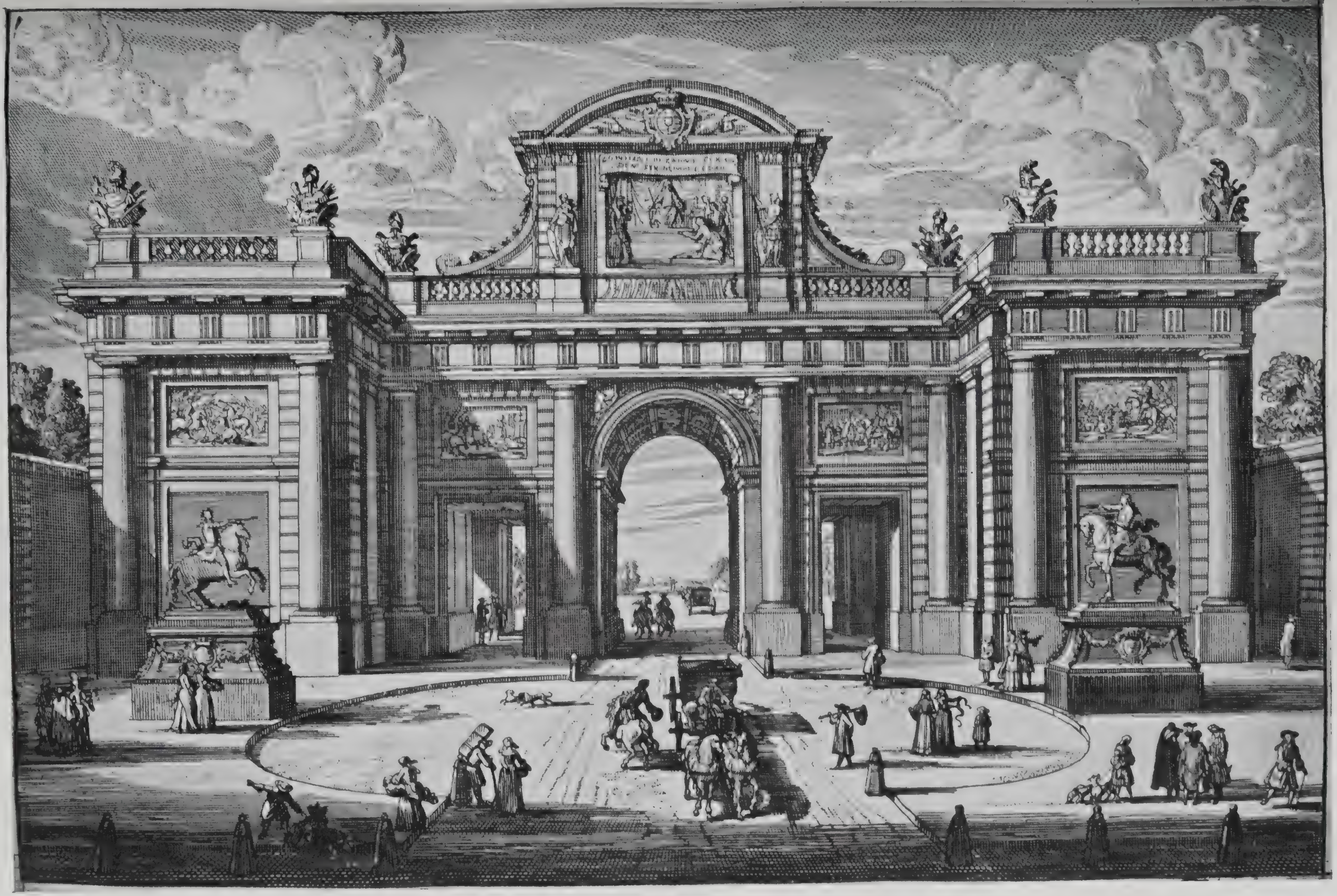


FRENCH MONUMENTS. XI.—DETAILS OF MONUMENT IN EXPIATORY CHAPEL, AURAY.

CARISTIE, ARCHITECT.



DETAILS OF CRAFTSMANSHIP. XIII.—BRONZE ENRICHMENT TO DOOR OF LOUIS XVI. ENCOIGNURE IN THE WALLACE COLLECTION.



DESIGNS BY DANIEL MAROT. IV.—A TRIUMPHAL ARCH.

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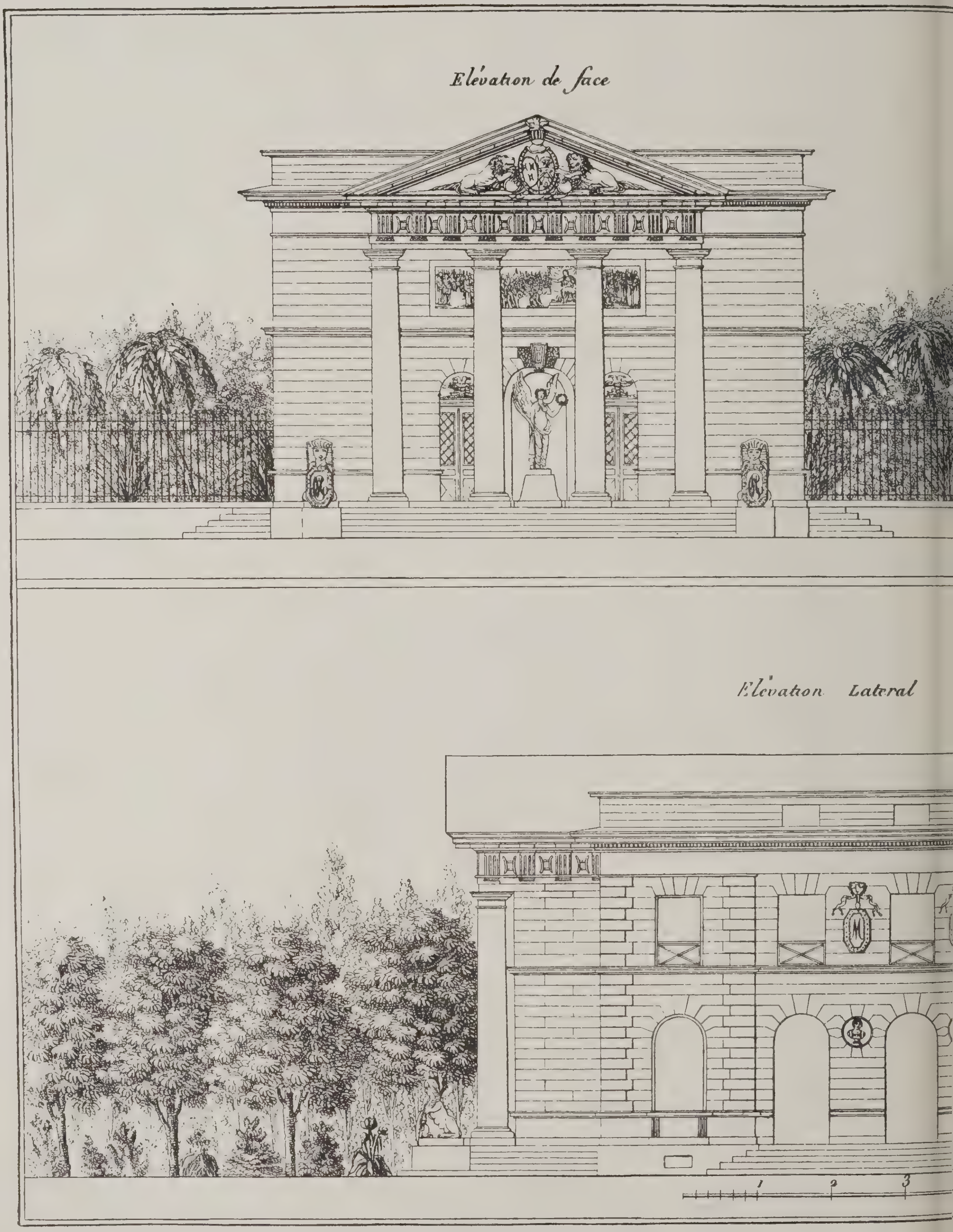
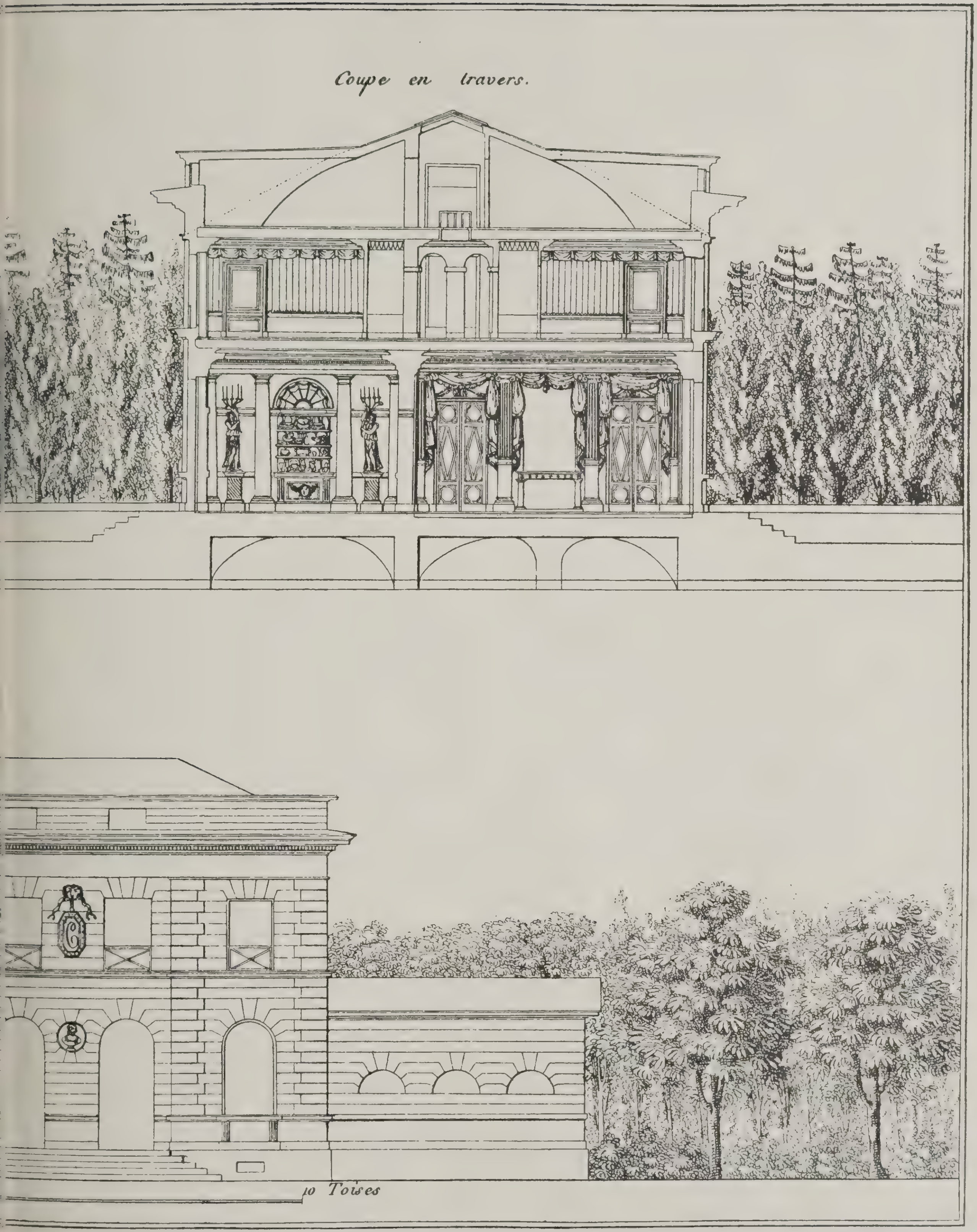


DESIGNS FROM K



USE AT TERLINDEN.

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MR. BELLOC AT THE A.A.

. HILAIRE BELLOC'S lectures and articles on various aspects of the War have aroused such general attention that it was not surprising a very large gathering at the Architectural ation's meeting last week, when he was nced to deal with " The Changes in the Concep- Artificial Permanent Defence, including those ed by the present Campaign." The lecture, er, proved to be disappointing from the archi- point of view, inasmuch as Mr. Belloc devoted chiefly to the strategical aspect of the problem re permanent fortifications, and only made brief nce to the development of modern fortifications. lloc could promise for the future nothing more ctural or constructional than a vast system of es, capable of indefinite extension, armed with ggest guns available, and amply provisioned. ermanent fortification of the future, he said, have to do away with two present faults— ion of area, and known site; and this object best be attained by a system of trenches in to which the enemy would find it very difficult uire precise information. Leading up to these sions, Mr. Belloc showed that changes in perma- ortifications had always been made long after weapons had rendered them obsolete. The sts in this country were beaten in the Civil Wars e they believed their castles were a sufficient tion; and this mistake had a parallel in our own that Liége and Namur could hold out against n weapons. Cannon was first used in 1330 to down stone walls, but it was two hundred years the walls were replaced by earthworks. The remained until 1830 or 1840, when, owing to the r range of guns, they were superseded by the ed or isolated fort system. But by the time had properly got hold of this idea, it also had e useless, and gave place in turn to the ring s, such as those at Toul, Belfort, Metz, and ourg, which were introduced in the latter part of ineteenth century. Meanwhile gunnery had ped the howitzer, which instead of firing verti- was able to lob a high explosive shell down on to from a concealed position, and so made the ring ss pregnable. The ring fortress was allowed, er, to remain, although Clarke in 1890 published on fortifications that should have changed their ter throughout the world.

THE PLATES.

"*Elloughton Dale*," *East Yorkshire.*

IS house, erected for Arthur J. Atkinson, Esq., stands on the western slope of Elloughton Dale, with a fine view southward towards the Humber orth-eastward up the Dale. The walls are built venhead bricks, with Portland stone cornices, etc., and the roofs are covered with red hand- tiles. The architect was Mr. John Bilson, ., F.R.I.B.A., and the contractors were Messrs. ge Houlton and Son, of Hull.

Auray Monument.

plate showing details of the monument erected expiatory chapel adjoining the church at Auray, -west France, supplements the plate given last

Door of a Louis XVI. Encoignure.

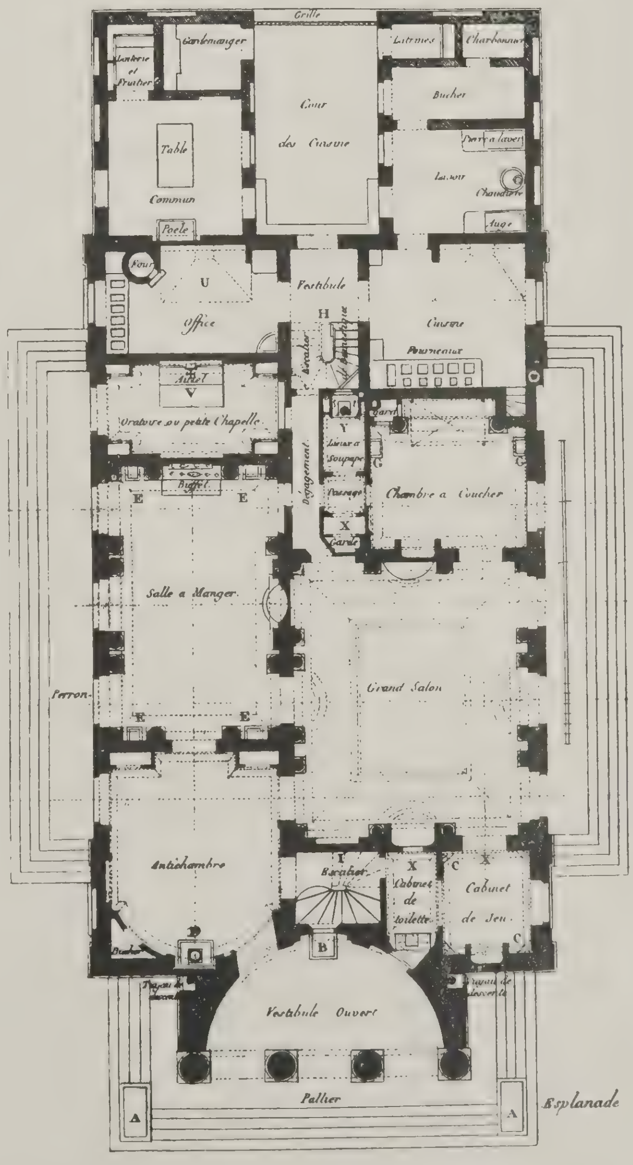
e Wallace Collection in Hertford House, Man- r Square, London, W., includes some magnificent ples of Louis XVI. furniture, nothing about is more remarkable than the exquisite design finish of the metalwork enrichments. The encoignure illustrated is in Room XIII. It is made of thuja wood and mahogany inlaid with stained woods, the mounts, plaques, and ornaments being of gilt bronze cast and elaborately chased, in the style of Gouthière.

Triumphal Arch.

This is another example from the series of designs for triumphal arches which are included in Daniel Marot's book. Though projected as a commemorative monument of the Dutch wars, it is essentially French in character, as might be expected when we remember that Marot was one of the French Huguenots who fled from their native country after the Revocation of the Edict of Nantes. The central gateway is well proportioned to the projecting wings, and the general treatment is far more restrained than in many of Marot's designs for the same subject.

House at Terlinden.

This would appear to have been the residence of a military personage—possibly one of Napoleon's generals—judging by the panel over the main entrance and the figure of Fame. The elevations are symmetrically contrived and of much elegance, but the plan does not display the same character, being a curious huddle of rooms, albeit two of these, the salon and the dining-room with its ante-room, must have presented a very imposing appearance. The planning of the kitchen department is interesting, more especially by way of comparison with modern ideas.



HOUSE AT TERLINDEN. LEQUEU, ARCHITECT.

AMERICAN SCHOOL PLANNING.

THERE is no finality in planning—especially in the planning of schools. Theories of education are in a constant state of flux, and the planning of schools moves sympathetically with them and has a certain degree of reflex action upon them. Consequently the practical interest of the subject is inexhaustible. In America there would appear to be rather less unrest; for Mr. Walter H. Kilham, in an article in the "Brickbuilder," declares that there almost no form of building has made so little real progress in the last twenty years. School-planning in that goahead country seems to have been the one thing that became stereotyped; but movement is now perceptible—in what directions may be inferred from the following digest of Mr. Kilham's article:

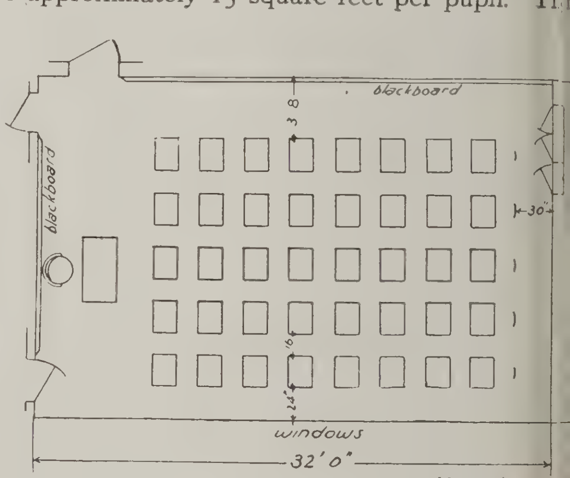
From a diffuse method of designing, which used to subordinate the plan to the external requirements of "American Romanesque," the pendulum swung towards excessive standardisation of the plan, merciless reduction of the cube, and suppression of all originality in design. Now there is evidence of a movement towards "humanising" the school building while retaining the advantages of standardisation, and the introduction of various sorts of civic conveniences into the buildings to increase their value to the community at large. Meanwhile, the cost of schoolhouses is advancing by leaps and bounds, and it is a real question whether the municipalities should be expected to make such large investments in buildings when educational ideas are still in a state of development.

The first point to be decided is the number of desks to be accommodated. The practice of seating fifty or more pupils in an ordinary class-room under one teacher is now only followed in congested cities where it has been impossible to keep the school accommodation up to the needs of a growing population. The general practice is to reduce the number of desks to forty-two, and some towns are even adopting thirty-six as the standard number. It is therefore possible to somewhat reduce the standard size of a room from that formerly adopted. Practical school men also dislike a room which is so large as to tempt the installation of additional seats with the pressure of increased population in the district. In general, the length ought not to much exceed thirty feet, as it is difficult for a pupil in the rear to easily see figures on a blackboard at a greater distance, and there is danger of difficulty in hearing a teacher unless he or she speaks very distinctly from this distance.

In a class-room lighted unilaterally the width from the windows to the corridor wall has been dimi until the general practice is now to make it twenty-four feet. Twenty-three feet has been a considerable extent, and is perfectly practica primary schools, but hardly wide enough to ta rows of grammar grade desks with aisles betwee row. (See seating plans reproduced herewith.) forty pupils are accommodated in five rows o desks, the room may even be narrowed to twent

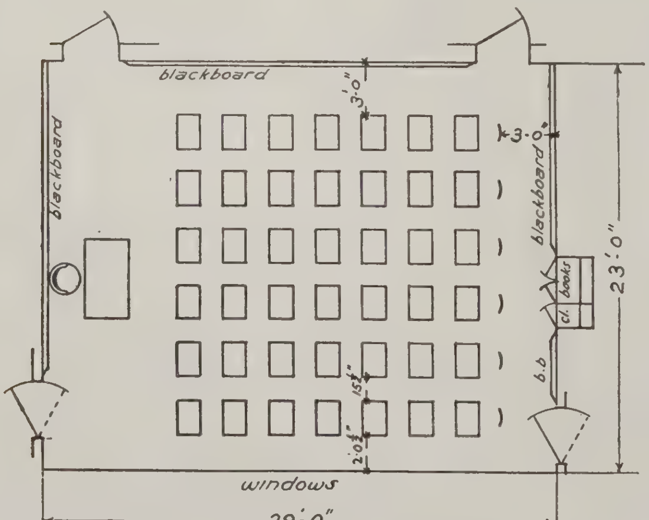
Professor Dresslar ("American Schoolh 1911) states that the width of the schoolroom unilateral lighting is used should never exceed the distance from the floor to the top of the wi where external conditions are favourable, and they are unfavourable even this distance is too and he cites German authorities who insist on a of only one and one-half times the height. H cludes that in the American climate. which is b than that of Prussia, a standard class-room sho 24 by 32 feet by 12½ feet high from floor to ceili

The Boston Report for 1914 gives 23 by 29 the standard size for upper and lower elem grades, and not less than 12 feet high in the High school rooms are 26 by 32 feet for for desks. This is not, however, always followe department stating that they regard it as an ide and indeed have no objections to an aisle as nar 15 to 16 in. Their aim is rather to obtain a roo of approximately 15 square feet per pupil. Th



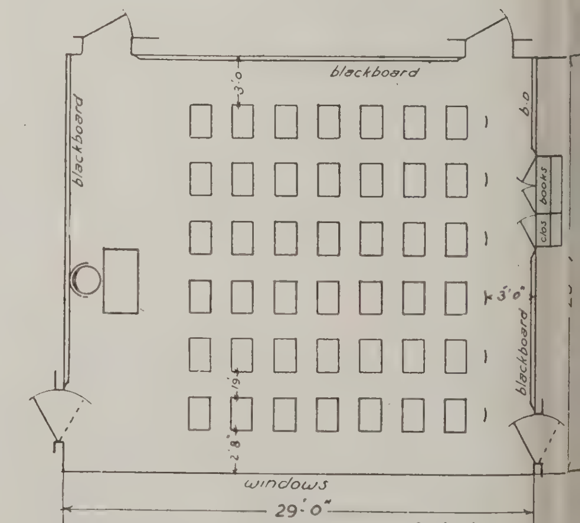
40 desks 16"×24"

GRADE VII 2·9" back to back
GRADE VIII 2·9½" back to back



42 desks 16"×23"

GRADE VII 2·7" back to back
GRADE VIII 2·7½" back to back



42 desks 16"×24"

GRADE VII 2·7" back to back
GRADE VIII 2·7½ back to back

chusetts state law, however, prescribes widths of as follows:

	Wall Aisles.	Centre Aisles.
iary schools ………	2 ft. 4 in.	1 ft. 5 in.
nmar schools ………	2 ft. 8 in.	1 ft. 7 in.
h schools …………	3 ft. 0 in.	1 ft. 9 in.

ing the case of a grammar school class-room ix rows of twenty-four-inch desks, it is evident ith a three-foot blackboard aisle the room would to be at least 25 feet 7 inches wide, have only five rows. In this case the room be 21 feet by say 32 feet or, perhaps more, the tendency being to lengthen the room d the accepted standard. If the additional in the aisle is merely a matter of easy egress, it seems to be necessary and not worth the done to the shape of the room from the point of f lighting as well as hearing and seeing.

Windows.

a time-honoured rule that the glass area of oom windows, measured inside the sash, must east one-fifth of the floor area of the room.

Inspection Department of the New York State tion Department rules as follows:

ie windows in all study rooms and recitation should be so arranged that the main light will rom the pupil's left. If necessary to have more w space, the supplemental light should come he rear; but no window should be placed in the lirectly opposite the teacher's desk. The vs should be grouped together as nearly as le on the pupil's left, so that the light may be l, thereby furnishing a comparatively even dis- on of light and minimising areas of light and v. The windows should extend as near to the as the principles of construction will admit, and be without transoms or unnecessary framework. ly and recitation rooms, one pane of glass to a recommended; under no circumstances should e more than four. Any considerable area on to the left of the pupils that is without win- rface should be opposite the space in front or rear of the pupils' desks. The ratio of window to floor surface should, as a rule, be one to f the main light comes from the north or from of the building which is much shaded, the ratio be one to four."

not a bad plan to use factory glass in the upper f windows on the south side of a building to the glare of sunlight and obviate the constant nent of window shades. Large sheets of glass re easily washed, but unless plate glass is used resent a poor appearance, and in either case are to replace when broken. Boston forbids large of glass, and architects in general seem to feel tter scale is given to the building by the smaller The glass area should always be figured ve of the muntins. The sills should be kept as e floor as is possible in order to get good light first row of desks. This height will be con- to some extent by the direct radiators under the vs, and should be from 2 feet 6 inches to 2 feet ies from floor to top of window stool.

ble-hung windows, in two sashes, upper and are ordinarily employed; but with the growing d for fresh air forms of windows which allow ening of the entire window aperture are coming nd more into demand. Transoms are objec- le, as they are expensive, cut off light, and are clean. Double run of sash is sometimes em- , but with the advent of the metal weather strip has become infrequent. It is, of course, very ive, is difficult to build in a 12-inch wall, costly n, and is rather a confession of an inadequate plant than a part of the equipment of a modern g.

Much attention should be paid to the arrangement of windows and piers so that no large piers or solid wall surfaces shall be placed so as to cast a shadow on the desks. If necessary to have such a pier, it should come in the part of the wall forward of the area occupied by the pupils. A good point to remember in planning a school is that in these days of high prices the only article whose cost has not increased is daylight. When possible, mullions and heads should be bevelled or splayed so as to increase as much as possible the amount of light entering the room.

Up to the level of the top of the blackboards, the walls are commonly covered with a good quality of burlap, free from projecting knots and loose ends, hung vertically and pasted to the plaster in wall-paper style. This is then painted with a glazed surface which renders it non-absorbent, and it forms a splendid protection to the plaster. But burlap is expensive, and where it is not used, ordinary wooden corner guards from the base to about 6 feet high form a sufficient protection for exposed angles. Where all the walls are of brick or other fireproof material, glazed brick or tile is sometimes used for dadoes, as in England, and Mr. Kilham thinks them excellent, and envies us our facilities for this treatment. Above the top of the blackboard the wall is painted in oil to the picture-moulding, which is placed half an inch below the ceiling. The author admires also our fireplaces which, he says, add enormously to the cheerfulness of the school-room, and he thinks that with the irresistible growth of the new notions of ventilation, their use will become common.

The ceiling is generally tinted in water-colour, a light cream or buff, but the plastering is sometimes left white. The angle with the walls is left square, no coves being introduced, and when possible it is better to have the ceiling free from drop beams.

For the class-room floor, maple, with boards about $2\frac{1}{2}$ inches wide, and blind-nailed, is recommended. An under-floor of boards not more than 8 or 9 inches wide is recommended. It is laid diagonally, so as to allow the upper flooring to run lengthwise of the rooms without being affected by the shrinkage in the boards of the under floor.

Class-room doors, as prescribed in Boston, are 3 feet 6 inches wide by 7 feet high, are partly glazed, open outwards, and are hung on brass-plated, ball-bearing butts (three should be used). The door must have a four-lever mortice lock, master-keyed, cast brass knobs (no lacquer), two-inch plain brass numbers, card-holders $3\frac{1}{2}$ inches by 5 inches, and hooks to hold open.

On the whole, it would seem that school-building is one of the few matters in which we can justly claim to be considerably in advance of our American cousins.

STEEL FRAME CONSTRUCTION.

In our next issue we shall commence a series of examples, taken from actual practice, illustrating steel frame construction under the L.C.C. (General Powers) Act, 1909. They will consist of typical large structural details—girders, stanchions, mansards, grillages, etc., completely calculated and illustrated, the working detail drawings being reproduced on double-page loose plates.

Although dealing primarily with steel frame construction under a particular Act of Parliament, the calculations and methods of design adopted are applicable to all constructional work; and in order to make the series as useful as possible to the general designer the author has selected examples which involve the solution of the maximum number of those practical problems which are not dealt with in theoretical text-books, but which constantly arise in the drawing office.

THE LAW AS TO THE REMUNERATION OF THE ARCHITECT.

BY A. MONTEFIORE BRICE, Barrister-at-Law.

JUST as the profession, as opposed to the practice of the architect, is not regularised by law, and its pursuit is open to any person who may choose to take upon himself the risk of holding out that he possesses the knowledge and skill required for the work he undertakes to do, so there is no legal or statutory code of charges for such work as he nas undertaken and done.

The profession and remuneration of the architect do not depend on statute as, *e.g.*, do those of the solicitor; but any person may hold himself out as able and willing to undertake the work of an architect, and any such person may sue for and recover some, but not necessarily a definite, remuneration for having done that work. Should the contract between the employer and the architect, or some subsequent contract, whether written or oral, specify, in exact terms or by reference, the charges which the employer shall pay and the architect accept, then there is an express contract as to the amount the architect may properly charge; but if there be no express contract, whether oral or written, as to such charges, then it will be held, as no professional man can intend or can be required to give his skill and care for nothing, that there was an implied contract between the employer and the architect, and the one should give and the other receive a reasonable remuneration for services rendered.

This is the legal doctrine affecting the remuneration of the architect, unless a specific contract has been entered into between the parties as to what that remuneration shall be. In the absence of such a contract, then the remuneration of the architect must be such an amount as in all the circumstances seems fair and reasonable.

Architects have endeavoured on many occasions to show that the scale of charges recognised by the profession has in course of time and experience amounted to a "custom"; but no scale of charges, however widely known within and however generally adopted by the profession, can, if unreasonable, govern a case in which the other contracting party did not know of such custom, or, if knowing of it, did not expressly or impliedly consent to it. Formerly the practice of the profession in this respect received perhaps greater attention than it has obtained in more recent years, and in 1869 Lord Romilly, in Attorney-General v. Drapers Co. (L.R., 9 Eq. 69), said that "the charges of brokers on the transfer of stocks and shares are paid by a commission, and if a similar practice prevails with respect to surveyors' charges I shall not disturb it. It prevents disputes as to amount, and the charges fixed by the scale do not seem too high."

The modern and still prevailing view was put clearly enough by Lord Coleridge, L.C.J., in Burr v. Ridout (1893, "Times," February 22) and followed by the same judge in Farthing v. Tomkins (1893), 9 T.L.R., 566; and in Gwyther v. Gaze ("Times," February 8, 1875), by Quain, J., who held that an alleged customary charge of 2½ per cent. on the lowest tender, when no tender had been accepted, was unreasonable, and left it to the jury to say what sum would be reasonable. While it is within the province of the jury to assess the amount which would be reasonable, it is the function of the judge to decide as to whether an alleged custom is reasonable. The Courts have always taken upon themselves to consider whether a custom is or is not within the bounds of reason, and if the custom is unreasonable the Courts have said that they will not recognise it as binding on people who do not know it and have not consented to act upon it. (Perry v. Barnett (1885), 15 Q.B.D., 388, per Brett, M.R., at p. 393.) And in Debenham v. King's College, Cambridge (1884), 1 T.L.R. 170, it was held by Wills, J., that there is no custom between surveyors and their clients by which the former can base their account on Ryde's Scale of Fees for Surveyors' Charges; and a surveyor, in the absence of a special agreement, is only entitled to charge a fair and reasonable sum for his services.

If, however, there is contained in the contract (as there should always be) a clause dealing expressly with the remuneration of the architect, no difficulty need arise; neither should there be any difficulty when the amount and scale of the charges is agreed by reference to be in conformity with the scale of the Royal Institute of British Architects or with Ryde's Scale or some other method of computation known to or accepted by the parties to the contract.

Where such a scale is known by the employer to exist and to be used, there will be a presumption (which may, of course, be rebutted) that the employment is upon the terms of such scale or custom, and in Buckland v. Pawson (1890), 6 T.L.R., 421, Day, J., said the question was whether the plaintiffs were or were not employed upon what was known as Ryde's Scale. He did not think the evidence in the case was sufficient to establish a custom, but there was abundant evidence that Ryde's Scale was generally known and was the ordinary mode of remuneration of surveyors. The plaintiff was employed by defendant, who, it was sworn, had employed others and had himself been employed on Ryde's Scale. There was overwhelming evidence that the persons whom the defendants entrusted with the duty of employing a surveyor were well acquainted with the custom, and it must be assumed that the plaintiff was employed on Ryde's Scale.

Similarly a custom, however unreasonable, is binding on the parties if the contract is entered into by them upon the terms of such custom. Thus in Blackburn v. Mason (1893), 9 T.L.R., 286 C.A., it was held by the Court, per Lord Esher, M.R., that a party could only be bound by an unreasonable custom when at the time of dealing on the market the custom was made known to him and he had agreed to be bound by it; see also Cooke v. Eshelby (12 App. Cas. 271).

There should be no difficulty as to the scale of remuneration if the architect agrees with his employer that his payment shall be made upon the basis of the schedule of charges as drawn up by the Royal Institute of British Architects, supplemented, where necessary, by Ryde's Scale.

The charges which an architect in the course of and arising out of his profession may be called upon to make are many and various, and may now be considered under two heads, namely, charges arisi
the building contract and charge
the building contract.

Charges Arising Out of the B Contract.

According to the Schedule of t
Institute of British Architects
practice of the profession, the us
neration of the architect is a 5
commission upon the total cos
works executed under his directi
this commission is payment for t
sary preliminary conferences and
approximate estimate when requ
necessary general and detailed
and specifications, one set of
duplicate specification, general
tendence of works, and exami
passing the accounts, *exclusive*
suring and making out ext
omissions.

The commission does not incl
ment for services rendered in c
with negotiations relating to th
premises, or in supplying dra
ground or other landlords, or in s
the site or premises and takin
making surveys and plans of bui
be altered, making arrangemen
spect of party walls and rights of
for drawings for and correspond
local and other authorities, or fo
consequent on the failure of bu
carry out the works, or for servic
nection with litigation or arbitr
in the measurement and valu
extras and omissions.

But the practice of the professi
that such commission of 5 per ce
adequate in the case of works of
than £1,000, or of highly decorat
ings or of alterations and additio
such cases the architect's fee is o
is reasonable in the special circu
of each case.

If the architect sends in an es
submits drawings for approval
are not accepted or approved or
claim for remuneration in respe
estimate or drawings, in the a
an agreement to the contrary,
Thus in Moffat v. Laurie (1855),
583, the architect made surveys a
for the employer without charge
understanding that he should be
the architect upon the land bein
building purposes, but the empl
and his executors put it out of th
to sell the land for building purp
it was held that he could recover
inasmuch as the event on the h
of which alone the plaintiff was
titled to remuneration for his
namely, the disposal of the land
ing purposes, had not happened.

In Moffat v. Dickson (1853),
543, the architect agreed to exa
site proposed for a lunatic asyl
to prepare preliminary probation
ings for the approval of the Visit
mittee, and subsequently to pr
whole of the working drawings,
and specifications for the asylu
accept £437 10s. for those servic
probationary drawings were not
and upon that ground it was hel
architect could not recover.

With regard to competition
everything turns on the precise
the invitation to compete, an
absence of any undertaking to
drawings must be regarded in th

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* Extracts from a paper read before the Society of Architects, March 11, 1915.

for which no charge can be Thus in Ward v. Lowndes (1859), Q.B., 265, the architect sent in for a covered market house upon ation of the advertisement of the ioners, who also offered a pre- £20 for the best design in the the author of such design not elected as the architect. The sued on the ground that his was lesign, but he failed in his action. the plans or estimates or prelimi- k are used at all, even if the archi- t likely to superintend the work, recover on a *quantum meruit*. Lindley v. Wilson (1880), 8 Ct. of s. 4th Ser. (Rettie) 289, an archi- ared detailed plans, and though ings were not proceeded with, the used the plans to his advantage g with a purchaser of the ground. ployer denied liability on the hat the plans had been furnished footing of there being a competi- it was held that assuming the fact stated by the defence, it still lay nployer to prove that the employ- is gratuitous, and this he had do. The Court held that the was entitled to reasonable remu- and Lord Shand added (p. 293): d been of opinion that the case of a competition of plans between architects, and the defendant had ls thought fit not to build at all, have had great difficulty in hold- he would have been entitled to say competitors, 'You shall be paid for the plans and labour you have on me.' My impression is that them would have been entitled to a *quantum meruit*." But the of competition was negatived by t.

Outside the Building Contract.

rchitect may be properly called render a variety of services in no essarily connected with the usual contract under which he plans, and supervises the erection or n of a building. He may, for in- e called upon to survey ground for building, or survey buildings, ire up completed work, or value lands or work, or draft bills of s, and act as an arbitrator or as s in Court or at an arbitration. rcising any of the foregoing func- is, in the absence of an express d agreement for a fixed or ascer- sum, only entitled to charge what nable. He may, if he choose, upon a scale known to and ap- y his profession: but, if it be un- le, he cannot impose it upon a o is ignorant of it, or who, upon king of the contract, could not e supposed to contemplate such a of computing payment. (See m v. King's College, Cambridge Brocklebank v. L. and Y. Ry. T.L.R. Burr v. Ridout (supra). v. Gaze (supra). Perry v. Barnett

the employer could reasonably be l to know of the scale and of the of charging in accordance with it, an implied agreement might be then the architect could sustain n for payment based upon such (see Buckland v. Pawson (1890), ., 421).

amining and settling accounts a builder and a building owner, itect can recover a reasonable fee me and trouble, but the Court will ept perhaps when the amount of ount is small) permit a charge based upon a percentage of the total amount of the account (Upsdell v. Stewart (1794), 2 Peake, N.P., 255).

Nor, in qualifying for giving evidence or for actually giving evidence can an architect base his fees upon the value of the subject matter in dispute. Coleridge, L.C.J., in Drew v. Josolyne (1888), 4 T.L.R., 717, declared that he had never sanctioned and never would sanction the supposed rule that surveyors should be paid for their evidence by a percentage on the sum in dispute rather than by a computation of the work they had done. In that case the surveyor employed as an expert witness had charged £136 for qualifying, and this amount had been reached by calculating a percentage on the work measured. The Master had struck out £106, and allowed the witness £30 for qualifying himself, and £3 3s. a day for attendance during the arbitration, and, on appeal, the Master's decision was upheld.

In measuring up deviations, etc., and in the absence of an agreement to the contrary, the architect is entitled by the custom of his profession to charge a sum over and above his commission of 5 per cent. (if such payment by commission is agreed) for doing such work.

In practice the amount is added to the builder's account, or, rather, to the certificate given by the architect to the builder, and this has the effect of putting the architect in the unsatisfactory position of inspecting his own work and certifying for it. But though the charge is added to the builder's account and presented by him to the employer for payment, yet this practice does not entitle the architect to sue the builder for the amount in the event of the employer refusing or neglecting to pay the sum in question. For although as a method of practice the payment has been included in the builder's demand, yet in essence the charge is one for which the employer is responsible, for the work of measuring up deviations and extras by the architect or the surveyor is a work which is obviously for the protection and benefit of the employer and serves as a check upon the builder. It is therefore useless for the architect to sue the builder, except for money had and received for the use of the architect. Beattie v. Gilroy (1882) 10 Ct. of Sess. Cas. 4th Ser. 226.

The charges of the architect are paid variously, but generally according to agreement and by periodical instalments.

It is a legal principle that if a contract is entered into to carry out an entire work for a complete sum, then the right to that payment does not arise until the whole work is itself completed. If an architect enters into such a contract as this, he runs a serious risk of getting nothing at all. For if he is unable by illness or other cause to finish the work he has undertaken to do, he is by that contract entitled to nothing.

If there is no such contract, then the architect may recover payment as the work progresses, for unless a contrary agreement can be shown, a man is entitled to be paid as soon as he has done any work agreed to be paid for, just as, in the absence of an agreement to the contrary, a vendor is in law entitled to receive the cash of his purchaser in simultaneous exchange for his goods.

Loose language in agreements has on many occasions deprived the servant of his hire. Thus, where a person working for a committee agreed to be paid by the committee on the terms of its resolution that "any service to be rendered by W. shall be taken into consideration, and such remuneration be made as shall be deemed right," it was held, when he brought an action for reasonable remuneration, that the committee was the sole judge as to whether any, and, if so, what remuneration should be payable, and that the plaintiff, in consequence, should be non-suited (Taylor v. Brewer (1813), M. and S. 290). But if the employer has agreed to pay some remuneration, then the architect is entitled to be paid one that is reasonable (Bryant v. Flight (1839), 5, M. and W., 114).

The intervention of a condition will determine the time of or the right to payment; as in Moffat v. Dickson (supra), where payment depended on approval which was not given, or as in Moffat v. Laurie (supra), where payment depended on the land being sold by the employer for building purposes, and the land was not so sold.

Should the employer who has entered into a contract with the architect for certain work refuse or neglect to proceed with such contract, the architect will then be able to sue for damages for the employer's breach of his contract, and the measure of his damages will be all the sums earned but not paid for before the breach and all the future profits which it is reasonable to suppose he has lost because of the breach. In Farthing v. Tomkins (1893), 9 T.L.R., 566, an architect prepared plans for a hotel, but owing to the financial incapacity of the employer the proposed building was abandoned, and the architect, failing to obtain his fees, brought an action for them, and it was held that he was entitled to recover fair charges for the work which had been done.

In Prickett v. Badger (1856), (1 C.B.N.S., 206, and see Spratt v. Dornford, Times, December 1, 1862), it was held that when an agent has done that for which he was employed, but the principal refuses or neglects to avail himself of the agent's work, the agent is entitled to sue for a reasonable remuneration for his work and labour, and in such a case a contract to pay what is reasonable is implied by the law; it is not a question for the jury.

The architect is not entitled to payment when his services have been unskilfully performed, or though skilfully performed have proved to be of no use for the purpose for which he has been employed. Lord Ellenborough, C.J., laid down the legal principle in Farnsworth v. Garrard (1807), 1 Camp., N.P., 37, where he said that "the plaintiff is to receive what he deserves. If there has been no beneficial service there shall be no pay; but if some benefit has been derived, though not to the extent expected, this shall go to the amount of the plaintiff's demand, leaving the defendant to his action for negligence. The claim shall be co-extensive with the benefit." And Bayley, J., in Duncan v. Blundell (3 Stark 6), said: "When a person is employed in a work of skill the employer buys both his labour and his judgment; he ought not to undertake the work if he cannot succeed, and he should know whether it will or not; of course, it is otherwise if the party employing him choose to supersede the workman's judgment by using his own." (See also Hill v. Fetherstonehaugh (1831), 7 Bing, 569, per Tindal, C.J., at p. 571, and Alderson B., at p. 573; Bracey v. Carter (1840), 12, A and E., 373; and Hunt v. Wimbledon Local Board (1878), 4 C.P.D., 48, Bramwell B., at pp. 53 and 54.

Where a professional man makes an estimate, which turns out to be incorrect to a considerable amount through his omitting to examine the ground for the foundations of the work, he is not entitled to recover anything for his plans, specifications, or estimates made for that work, for he is negligent either in not himself making the examination or in trusting to the inaccurate information of others. Whether he has used due diligence or not is a question for the jury. If he went on the statements of others, that is no excuse, as it is his duty to ascertain what are the facts or to report to his employer that he only goes on the information of others, or that the facts have not been ascertained (Moneypenny v. Hartland (1824), 1 C and P., 352).

On the other hand, where the question of what is a reasonable sum to pay an architect on work done, *i.e.*, in a case where there is no express contract or the contract has been abandoned and he is suing on a *quantum meruit*, is under consideration, evidence may be given that an architect is a man of exceptional professional skill, qualification, or experience, and if this is proved the reasonable fees should be higher than in the case of a person with less or inferior qualification, for it follows that if the employer has chosen a man known for his special degree of skill it is a fair presumption that he chose him for that reason and that there was an implied undertaking to pay fees in some true proportion to the services expected. Moule, J., in Bird v. M'Gaheg (1849), 2 C. and K. (N.P.), 707, held that in an action for payment on a *quantum meruit*, where the plaintiff sued for a larger fee than had been tendered to him, evidence of skill, in order to show the reasonableness of the larger claim, was admissible.

The fact that an architect exercises his lien over his plans and detains them does not disentitle him to sue for the payment for the same, provided that he has given his employer reasonable facilities for inspecting and approving them. Nor is he unable to sue for and recover a proper price, even though he detained the plans when asking for a larger price. He is always entitled to recover for work, labour and materials, on proof of the performance of the work and of the employer's having had a reasonable opportunity of inspection.

NOTES ON HOT-WATER SUPPLY.

Broadly speaking, there are two "systems" in general use for hot-water installations for tap supply. One, which has been called the "tank system," has the hot storage vessel at a high point in the house, the taps being served by branches from the flow pipe. Fig. 1 gives an outline of this apparatus in a simple form, but embodying all the customary details; the illustration also showing a gas circulator connected up. The other method is usually called the "cylinder system." In this the storage vessel is at a low point in the house, commonly in the kitchen, the taps being served by branches from the expansion or exhaust pipe, which extends up from the top of the storage. Fig. 2 shows an installation on the cylinder system, in simple form, and in this also a gas circulator is shown connected up. With this system, however, there is an alternative method of connecting a circulator, as explained later.

The practice of hot-water engineering differs in various parts of the kingdom, but it may be said that the tank system, which is the older of the two, is chiefly adopted in the southern half of England, while in the northern half of the country, including Scotland, this system is seldom met with, the cylinder system being almost exclusively adopted.

The quality of the water available has much to do with the varying practice in different districts, and it is noticeable that the tank system is to a marked extent confined to those districts which are served with hard water. For the present purposes it may be said that "hard" water is that which carries lime in solution, and "soft" water that which is free of lime or carries very little. When the water is hard (like that in nearly all the southern half of England, and in some areas elsewhere) the boilers, pipes and tanks or cylinders of a hot-water apparatus may be of iron, as free rusting does not occur. This is partly due to the fact that the presence of lime in the water is somewhat unfavourable to rusting, but, more import-
ant, as "hard" water is heated a
carbonate of lime is deposited
on the inside metal surfaces
quite protecting them, for which
the use of iron cylinders, pipes,
practically universal in hard-wat
tricts, it being felt that copper cy
and pipes, or lead pipes, offer no com
tory advantages when iron is perm

In most soft-water districts iron
rapidly as to be useless, partly bec
the destructiveness of this actio
chiefly because the water is discolo
deep brown. The writer was in a
recently where the water was, it mi
said, neither hard nor soft. It at
iron slowly, so that iron cylinders l
few years only, and copper cylinde
to be used. Notwithstanding thi
boilers were regularly employed, a
thickness ensured a full life; the
not being rapid enough to cause not
discoloration of the water.

In the majority of soft-water d
copper cylinders, copper or lead pip
copper boilers are necessary, and th
tion arises whether this fact is not
sible for the cylinder system being th
lar practice in those districts. When
copper for the storage vessel, it
that the thinnest possible sheet sho
employed, so as to save expense, an
thin metal the storage vessel must
cylindrical form, the square shape
liable to bulge, and to become mis
and leaky.

There are, however, two common
in the customary installations, and
merits of the gas boiler have to b
sidered, it is important that these
should be recognised, as they prejud
yield of hot water from the apparat
which the boiler is almost always b
If hot water is not obtainable with
able quickness, the boiler is said
inefficient; if too long a time is ta
getting the water hot, the boiler is
be extravagant. Yet both defects
due to faults in the apparatus, the
being in no way responsible.

The two common faults are:—(1
flow pipe terminates too low in cylin

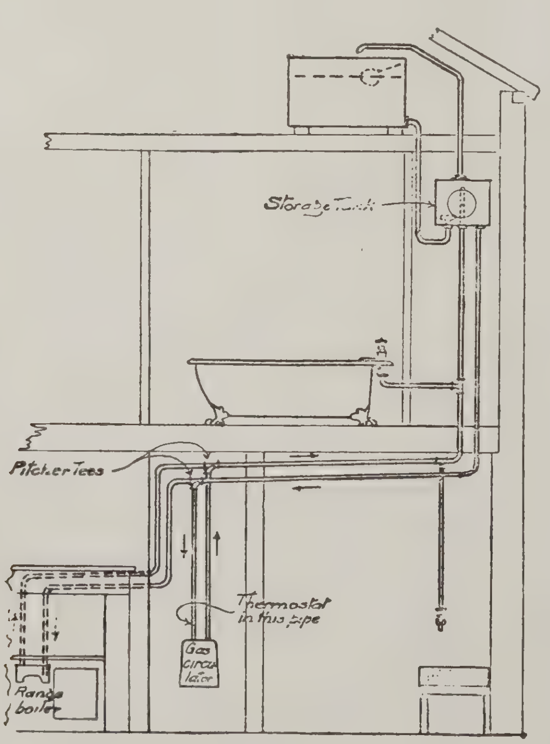


Fig. 1.

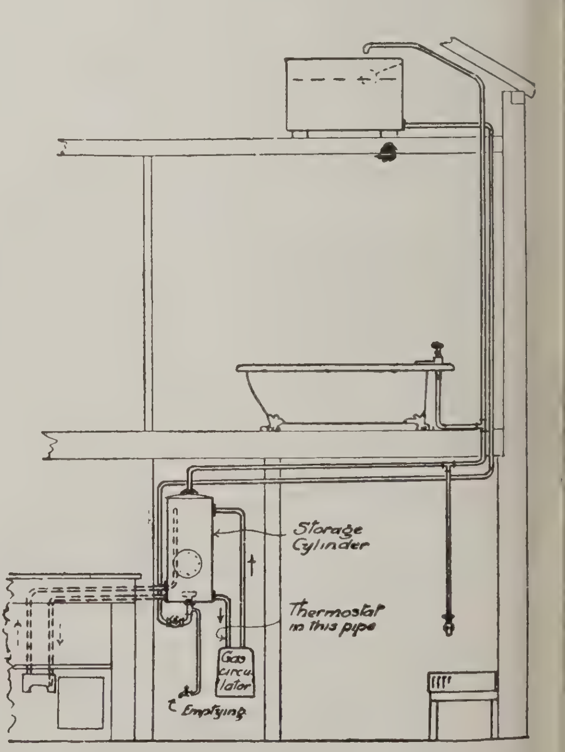


Fig. 2.

HOT-WATER SUPPLY SYSTEMS.

) the cold water is delivered into
ıratus so that it mixes too freely
hot.

will not admit of a full discussion
but it may be accepted as good
that the flow pipe should never
e in cylinder or tank lower than
n the bottom. If it does, it should
ed. A low flow termination can
wnright failure. The cold supply
ould be connected or made to
e so that it delivers the cold water
ally on the bottom of the cylinder
These points may be regarded as
to good results, and should never
cted.

necting up gas circulators to exist-
water installations—this being the
rpose to which circulators are put
be noticed that with the tank
Fig. 1, the pipes from the circu-
n the pipes from the range boiler,
low, return to return. A rule to
ously observed is always to use
-tees" or 45-degree branches
pipes join pipes (never to use
right-angle tees, and to let the
be up near the ceiling, not lower
ar the boilers. These details are
nt the trouble known as inter-cir-
occurring.

the apparatus is on the cylinder
Fig 2, it is the best plan to let the
m the gas boiler enter the cylinder
lependently of the pipes from the
oiler, as illustrated. If this can
the best possible results will be
. In the case of copper lidless
, however, it is not an easy matter
ct as Fig 2. Therefore Fig. 3 is
a possible way of connecting up
od results. It is best not to
connecting *both* pipes from the gas
r to the pipes between the range
cylinder. The best proportions
gas circulator and storage vessel
possible to get them—is a half-a-
torage to each cubic foot of gas
when the boiler burner is full on.
irculator with 40 ft. burner should
o work with a 20-gallon cylinder
(or not exceeding 25 gallons); an
ırner to 40 gallons storage, etc.

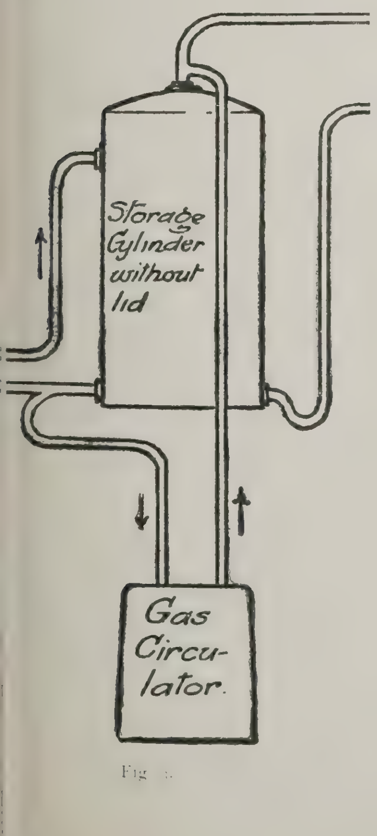


Fig. 3.

ENQUIRIES ANSWERED.

Specifying Road Metalling, etc.

X. (London) writes: "In specifying road metalling, how is thickness usually construed? Is it to be understood as the finished thickness after rolling?"

—It is usual in a specification to state definitely that the thicknesses of road metalling or hardcore foundation are to be the "finished thicknesses after rolling." A clause extracted from my own specification is as follows: "The foundation of the road shall be of hardcore as specified and shall be 9 in. thick after being consolidated by rolling. It shall be evenly laid to the proper contour of the road and thoroughly rolled by a ten-ton steam roller. The foundations for the paths shall be 6 in. thick after being consolidated by rolling." In the "bill of quantities" I always state that the thicknesses specified are to be the finished thicknesses after consolidation by rolling. Unless this is made clear a dispute is likely to arise.

W. H. M.

Leaks in Corrugated Iron Roofing.

A. (Kent) writes: "Enquirer would like to hear of any successful method of sealing the vertical joints of corrugated iron sheeting on large roofs where rain drives in during heavy gales."

—It is doubtful whether a successful result can be obtained without relaying the sheeting, though tar well brushed in may be worth trying. If the situation is exposed the sheets should be given a double side lap (*i.e.*, to the second corrugation) and, of course, the direction of the lap should be opposed to the prevailing wind. What appears to be an excellent invention for prevention of leaks and dripping of moisture (condensation or leakage) from the underside of corrugated roofs is Thomas's patent condensation fillings. Particulars may be obtained from the Metal Agencies Company, 32, Queen Square, Bristol.

G.

Cesspool for Small Houses.

L. E. W. (Hants) writes: "Please advise as to the best form of cesspool for a pair of small houses (two w.c.'s, bath, sink, etc., to each). The subsoil is very loamy sand. Can you recommend an authoritative book on sewage disposal?"

—A reply to a somewhat similar query appeared (with an illustration) in THE ARCHITECTS' AND BUILDERS' JOURNAL for January 15, 1913. If the bylaws permit, and the subsoil is sufficiently permeable for benefit to result from the arrangement, the addition of a small sump or soakaway, to which the overflow from the cesspool can be connected, will almost remove the necessity for clearing the cesspool, which if done at frequent intervals, as would certainly be needed with two baths in connection, is a great nuisance and expense. An excellent book on private sewage disposal is "Drainage and Sanitation," by E. H. Blake, published by B. T. Batsford.

G.

Flat Glass Roof Over Veranda.

E. J. A. (Lancs) writes: "It is desired to cover the veranda shown on the attached tracing [not reproduced], with a flat glazed roof divided into squares by margin bars and without the usual "pitched" roof over it—that is to say, the flat glazed roof is to act in the dual capacity of ceiling light and roof light. Would you kindly say if you know of any method of constructing such a roof so that it will be weatherproof?"

—Querist can make use of one of the patterns of flat floor or roof lights made in stock sizes by all manufacturers of pavement lights. These are usually filled with square glass panels at 12-in. centres at about 4s. per foot super. A *slight* fall should be given, and the joints between the sections should be bolted up and made with rust cement. The frames must be rigidly supported if the joints are to hold watertight.

G.

Powers of London Borough Councils.

L. B. A. (London, S.W.) writes: "Could you kindly inform me what powers the London Borough Councils have with regard to irregular structures? I am under the impression that the London Building Act, 1894, Section 82, Part VII., places these entirely under the authority of the London County Council, who have power to grant permission to erect. Have there been any Amendment Acts subsequent to the 1894 Act to relegate these duties to the Borough Councils?"

—The powers of the London County Council to license wooden structures under Section 84 of the London Building Act, 1894, were transferred to the Metropolitan Borough Councils by the London Government Act, 1899, Second Schedule, Part. I.

G.

Book on Water Towers.

RETAW (Yorks) writes: "I shall be glad if you will kindly let me know, through the columns of THE ARCHITECTS' AND BUILDERS' JOURNAL, whether there is any book dealing with the origin and uses of water towers."

—This question has been submitted to Messrs. B. T. Batsford, Ltd., 94, High Holborn, W.C., who reply that the only book on the subject of which they are aware is an American one—namely, "Towers and Tanks for Waterworks: The Theory and Practice of their Design and Construction," by J. N. Hazlehurst, Member of the American Society of Civil Engineers; third edition, revised and enlarged, 10s. 6d. net, postage 6d. extra. This book can be obtained from Messrs. Batsford.

Laying Old Pantiles.

R. and S. (Herts) write: "We should be glad to have your advice as to the best means of laying old pantiles to a block of cottages we are building, in order to ensure a sound roof."

—The best method of laying pantiles is above boards, felt, or Willesden paper, counter battens, and battens, each tile being bedded at head and under wave-lap in hair mortar. In cottage building, however, it is usually impossible to afford this treatment, and a reasonably good alternative is to lay Willesden two-ply direct on rafters, lapped 2 in. at joints, and hang the tiles on stout battens nailed to rafters through the paper. A further alternative is to cover the backs of rafters between battens with reeds or straw before laying tiles. This holds the bedding stuff, stops draught and slight leakages, and keeps the interior warm. It is the usual method in old work in the Eastern Counties. Hair mortar should be used for bedding as cement mortar sets too rapidly (*i.e.*, before the roofs are completely covered and have taken their bearing); cement may be used for pointing up wave lap after laying. See section on pantiles in chapter on roof coverings in Vol. II., "Building Construction," in "The Architects' Library."

G.

NEWS ITEMS.

New Synagogue at Jesmond.

A new synagogue in Eskdale Terrace, Jesmond, Newcastle, which has just been opened, was designed by Mr. M. K. Glass. The contractors were Messrs. Elliott Brothers.

Belgium Town Planning Committee.

By the invitation of the Belgium Town Planning Committee, the President of the Society of Architects, Mr. E. C. P. Monson, F.R.I.B.A., has been nominated to represent the Society on this Committee.

Buildings, Glasgow.

Glasgow School Board are to erect a new school in North Avenue Road, Springburn. Mr. Alexander Skirving, 121, West Regent Street, Glasgow, is the architect. Glasgow Corporation have had plans prepared for the erection of a new hall and library at the Couper Institute, Cathcart.

The New King's College Hospital.

There was a large audience, including a sprinkling of medical men, at last week's meeting of the Royal Institute of British Architects, when Mr. William A. Pite, F.R.I.B.A., read a paper on "The New King's College Hospital at Denmark Hill, S.E.," of which building he is the architect. The paper was a very lengthy one, and we have not space in the present issue for an adequate summary of it; hence our report is held over till next week. At the same meeting a vote of condolence was passed with Mr. Lionel Crane and other members of the family of the late Mr. Walter Crane.

A New Church for Edgbaston.

The foundations are being dug for the new church of St. Germain's, Edgbaston, on a site given by the Gillott Trustees, situated at the corner of City and Portland Roads. The site is large enough to admit of the erection at a future time of a vicarage and parish room in addition to the church. The church will be built, at an estimated cost of £8,400, from designs selected in competition, prepared by Mr. Edwin F. Reynolds, and provision is made for a brick building, with stone facings, to accommodate about 650 worshippers. The contract has been given to Messrs. Collins and Godfrey, of Tewkesbury.

Royal Albert Edward Infirmary, Wigan.

A new out-patient department, which will include accommodation for various special treatments, is to be added to the Wigan Infirmary. The tender for the erection of the new premises sent in by Messrs. Maisey Brothers, of Pemberton, was accepted. The cost is £12,000, and the architects are Messrs. W. C. Ralph and Son, of Wigan. The new department will comprise a central waiting room, with consulting, x-ray, bath, and sterilising rooms, and a dispensary. A refreshment bar is also to be provided, where coffee and light refreshments are to be sold to waiting patients. The ground floor consists of a central hall with consulting rooms grouped about it, a small theatre, and a receiving room, which is provided with a separate approach from the grounds and is connected by a covered corridor to the main block, so as to provide easy access for the removal of accident cases to the main building.

Restoration of Breadsall Church.

The restoration of Breadsall Parish Church, which was destroyed by fire early last June, is now well in hand. The church, which was a fine specimen of old Norman work, is being rebuilt, under the direction of Mr. W. D. Caroe, architect to the Ecclesiastical Commissioners, as it was in the early part of last century. One of the few ornaments which escaped the general destruction was a lovely piece of mediæval sculpture, in Italian marble, representing the Blessed Virgin with the dead Christ on her knees. Found under the flooring of the west end of the nave in 1877, this Pieta was placed on a bracket near to its probable original position at the east end of the north aisle, which served as a Lady Chapel. After the fire it was boarded up, but, unfortunately, owing to the bracket having been cracked by the flames, it collapsed, the hoarding was carried away, and the figure fell on its face, but the damage has been satisfactorily repaired, chiefly through the use of powdered white marble.

RETIREMENT OF SIR G. LAURENCE GOMME.

At the meeting of the London County Council held on March 30, Mr. James Bird, the Deputy-Clerk, was unanimously promoted to the office of Clerk to the Council, vacant by the resignation of Sir Laurence Gomme, the new Clerk to have a salary commencing at £1,600 a year, rising to £2,000, and retaining pension rights in his salary of £1,000 a year as Deputy Clerk. Acknowledging the congratulations of the Chairman (Mr. Cyril Jackson), Mr. Bird thanked the Council for the appointment, not only on his own behalf, but on that of the staff, as affording proof that the Council were prepared to appoint to the highest positions in its gift men who had served in the lower ranks of the Council's service.

Moving that the Council, on the conclusion of Sir Laurence Gomme's tenure of the office of clerk, place on record high appreciation of the great ability and strong sense of public duty which had marked his official services, Mr. R. C. Norman, the leader of the Council, said they had the consolation that Sir Laurence Gomme's duties in connection with the Council had been only part of his work for London. A great Londoner, he had won distinction in other fields, and they knew that when he left the Council it would be to devote himself with greater energy to his labours in those fields. Sir John Williams Benn, in seconding the resolution, which was carried unanimously, described the late Clerk as a model civil servant.

Sir Laurence Gomme said he had always been ambitious for London, which he believed was going to take a very much greater position in a very much greater Empire, and he was quite certain that that Council—the Parliament of London—would so carry out its duties that all sections of Londoners might look to it for guidance, help, and strength.

NEW SUTTON MODEL DWELLINGS AT NEWCASTLE.

Building work is to be commenced shortly in connection with the Sutton Model Dwellings, the large scheme for the housing of the working classes which has been inaugurated in Newcastle. The site, containing about $2\frac{1}{4}$ acres, is bounded by Barrack Road, New Mills, Moor Street, Back Jefferson Street, and Derby Street, and it was chosen by the trustees on the advice of the architect for the scheme, Mr. Charles S. Errington. Already the following contracts have been let: General contractor, Mr.
Mauchlen; railings and gates, Mes
Aynsley and Sons, Ltd.; Venetian
Messrs. Stewart and Co.; ranges,
etc., Messrs. Comes and Haighto
don; and the work of demolishi
existing buildings and clearing
will be pushed forward with all d
in order that the dwellings may b
for occupation at the end of 1916.

The scheme, which has many
unusual in this district, provides f
blocks of dwellings of the open-
type, each three storeys high, the
giving twenty-eight three-room,
room, and three one-room tenement
dwellings will have well-appointe
leries, with bath, and provision
made for coal store, larder, etc
dwelling being quite self-con
There will be sufficient sunlight
space, and portions of the courts
the blocks will be laid out as g
whilst the whole estate will be surr
by a shrubbery and neat iron p
The principal entrance will be in
Road, with the superintendent's off
house closely adjoining. The bu
will be of the most up-to-date c
tion, all floors and partitions bei
proof, and the floors of the living
and bedrooms will be finished in
jointless flooring, with rounded s
so that no other floor covering
necessary. Arrangements will
made for supplying hot water
copper or bath when required, t
tractors for the baths, ranges, etc.
the same firm as that which provi
fittings for the Sutton Model Dwel
London and elsewhere.

WHARFEDALE ISOLATION HOS WINSTON.

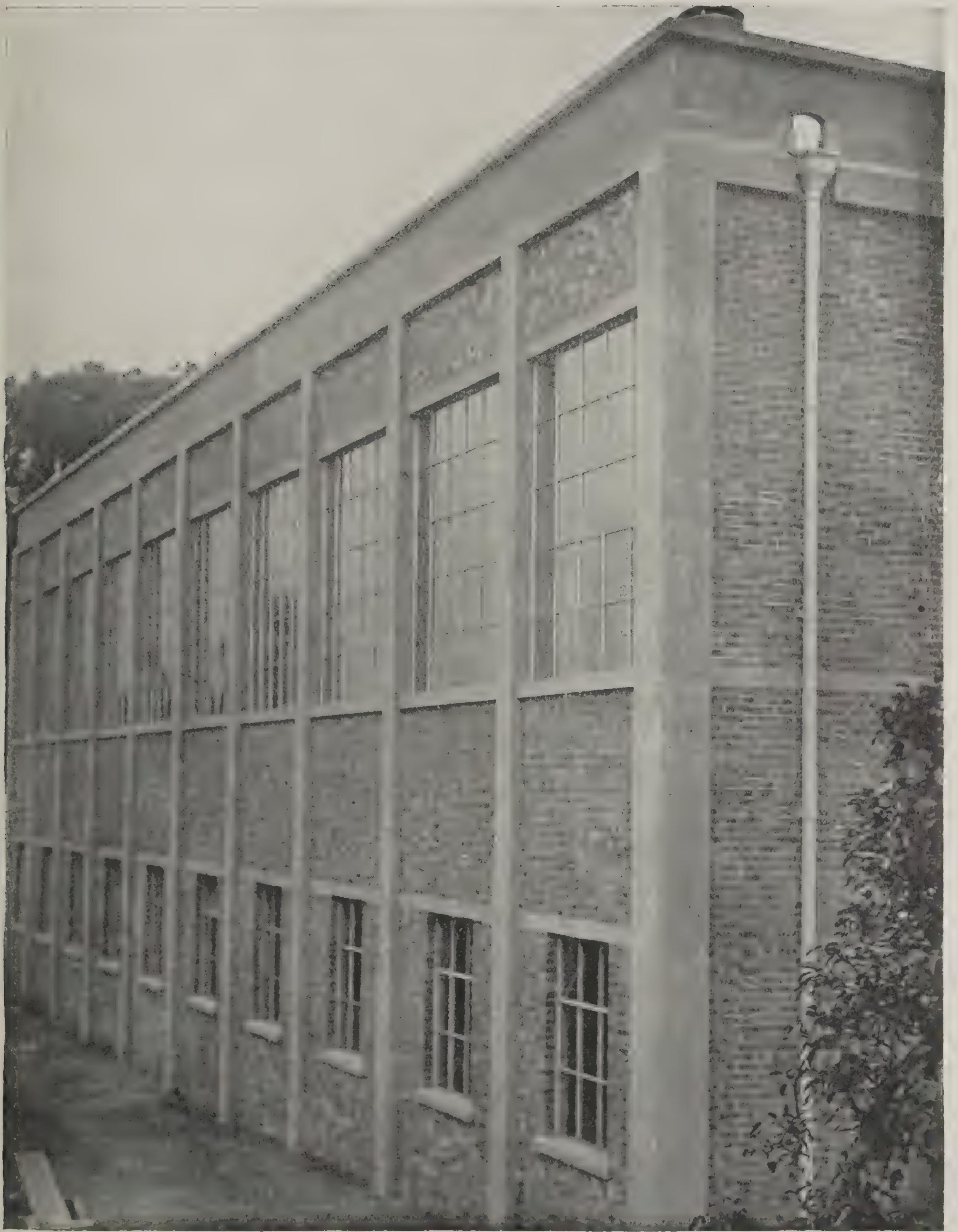
The new diphtheria pavilion, op
February 24 at the above hospit
vides for sixteen beds, and consist
large wards and two single-bed war
nurses' duty room with inspecti
dows into each ward. There is
inforced concrete veranda, 10 ft. wi
extending along the west front, i
in fine weather the patients can h
benefit of open-air treatment. A
room for about thirty members
additional bedrooms are provide
extension to the administration
The walls are of Idle delphstone
crete foundations, with bitumen
course, and the roof is covered wit
mottled Buttermere slates. All
pipes have Stansford joints.

The floors of the wards are $4\frac{1}{2}$-in
boards, secret-nailed to coke-bree
crete floated with boiling tar and b
Inlet ventilators are provided und
bed, also behind each radiator and
Shorland's Manchester grates, wh
provided in each ward in addition t
radiators. Shorland's extract ve
are also used to carry off the vitia
The "Austral" windows and Teal'
windows are used on the east, no
south elevations.

The walls are all finished smoo
"Pytho" plaster painted with V
The sanitary departments are i
glazed bricks with "Pytho"
painted with Glidden's white
enamel. The sanitary fittings a
plied by Messrs. Adamsez, T
Doulton, and Farrer. All metal w
gas fittings are silver-plated. All
angles are rounded and a cov
finishes all internal angles. The
tects are Messrs. A. Marshall a
Otley and Leeds.

FERRO-CONCRETE

HENNEBIQUE SYSTEM



FERRO-CONCRETE FRAMED BUILDING, TEDDINGTON

HOLLOWAY BROTHERS, (LONDON) LTD.

esigns and Estimates Free. 19 & 21, Belvedere Rd., Westminster Bridge, S.E.

TRADE AND CRAFT.

Concrete Roads and Kerbs.

Macadamised roads served their day and generation very well indeed, when they were properly made; but the best of them are quite inadequate to modern conditions of traffic. As to what the chief features of a good modern road should be, Mr. L. White, South Park Commissioner of Chicago, is quoted in a very practical pamphlet which has been issued by the Associated Portland Cement Manufacturers (1900), Ltd.: "It should be," says Mr. White, "inexpensive and pliable in cost, simple of construction, without endangering its permanency. It must be dustless, noiseless, resilient, smooth, non-slippery, clean, and of agreeable colour to the eye."

Most of these requirements, it is claimed, are fulfilled by well-laid concrete roads. For many years past, it is pointed out, the principal roads of large towns have been laid with foundations of mass cement concrete, upon which to lay some surface material, such as asphalt, granite setts, or wood blocks; and it is claimed that for motor traffic of all kinds there is no better surface than that which is formed of concrete itself. In America it is the practice to reinforce all concrete roads that are over 20 ft. wide, and the experience there is that in first cost and in maintenance concrete roads show to advantage; and a concrete road at Chester, England, cost only 3s. 10d. per super yard, including excavations and the preparation of the base.

A useful feature of the pamphlet under notice is a full specification relating to one of the six experimental sections of concrete roads that have been laid on the London-Dover road, adjoining the southern boundary of the Gravesend Borough, near Chalk, Kent. There are also particulars of the concrete road laid in 1913 in Robert's Lane, Saltney, near Chester, by Mr. W. Matthews Jones, the borough surveyor of Chester. It is 950 ft. long and 20 ft. broad. The subsoil being clay, 2 in. of cinders were first placed to bind it, and on this 2½ in. to 3½ in. of concrete, made of five parts of broken granite—¾ in. to small 2 in., mixed—and sharp sand to one of cement. On this was laid a reinforcement of rib expanded steel, 8 in. square, in lengths of 20 ft. by 5 ft. 4 in. Covering this reinforcement, concrete of the character described was put down to a depth of 3½ in. to 4½ in., and the surface roughly smoothed over. The greater depth of concrete—8 in.—was 12 in. from each kerb-line of the road, where heavy loads might be standing; other than this it was all 6 in. of concrete. For a year the road remained without any repair; then it was tar-sprayed and sprinkled with granite chippings. Mr. Matthew Jones believes that eventually all main country roads will be made on these lines.

Short particulars of the construction of concrete roads in America, and official reports upon various roads in that country, are given in the pamphlet, as well as the standard specification prepared by the American Concrete Institute. The accompanying illustrations show the method of forming concrete kerbs and channels. The kerbs may be 4 in. to 7 in. wide at the top, and 5 in. to 18 in. at the bottom, with a face 6 in. to 7 in. above the gutter, or any other size desired. The concrete base or foundation should be 5 in. to 8 in. thick; the broken stone foundation should be 12 in. thick. The concrete kerbing should be built in sections, 6 ft. to 8 ft. long, separated each from the other and from the path by tar paper, laths, or a cut joint, so as to avoid trouble from expansion or contraction.

This exceedingly useful pamphlet may be obtained on application to Portland House, Lloyd's Avenue, E.C.

Cheap Steam and Machine Firing.

We have received from Messrs. Ed. Bennis and Co., Ltd., of Little Hulton, Bolton, and 28, Victoria Street, S.W., the manufacturers of mechanical stokers, coal elevators, and conveyers, a copy of their latest pamphlet, entitled "Cheap Steam and Machine-Firing." The pamphlet is plentifully supplied with interesting photographs of installations carried out by this firm in all parts of the country.

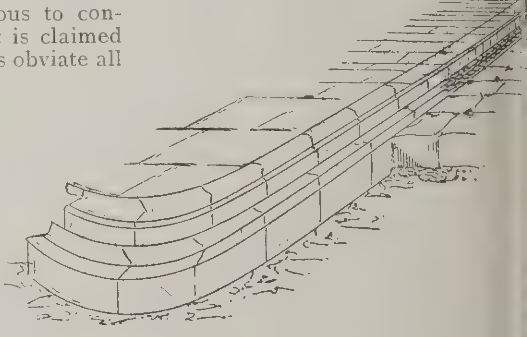
Emphasis is laid on the absolutely smokeless combustion which is an essential feature of their apparatus. Architects who are or may be called upon to design public buildings, hospitals, infirmaries, poor-law institutions, etc., or, indeed, any building where smokelessness is a desideratum, will find it advantageous to consult this pamphlet, in which it is claimed that "Bennis" Machine Stokers obviate all the troubles due to the necessarily wasteful and irregular method of firing by hand and enable the completely successful use of low-quality coal. The coal is automatically distributed by the m cal stokers without the openi the furnace doors, and the bution is invariably to such of the fire as require the fuel. sequently, a uniformly high furnac perature is maintained, with a corre ingly increased evaporation, an boiler-plates being subject to a mi of strain, a great saving in wear a is effected and the boiler life is prol

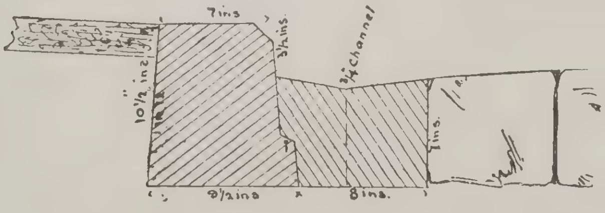
The practical value of the self-cl compressed-air furnace, which con so important a part of the "B method of machine-firing, is, it is obvious not only in the cleanness fires and their freedom from ash, the appearance of the fire-bars, t spaces remaining unclogged by clin matter how long the fire may b tinued.

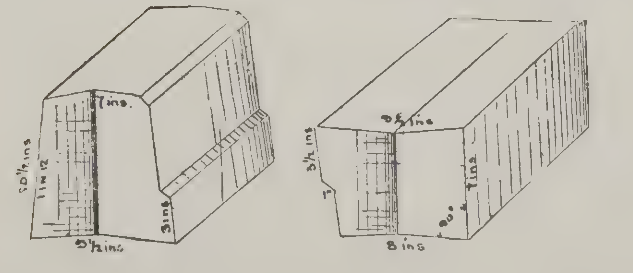
"Bennis" machine-stokers, it is afford a perfectly regular output o even under the most trying conditio their flexibility permits a rapid resp urgent demands for increased steam principles of design in these s types ensure smokelessness, an in steam supply of 10 to 50 per cent. mum labour costs, low fuel bi extended area of coal supply, nomi negligible costs for repairs—in words, cheap steam without smol under comfortable conditions.

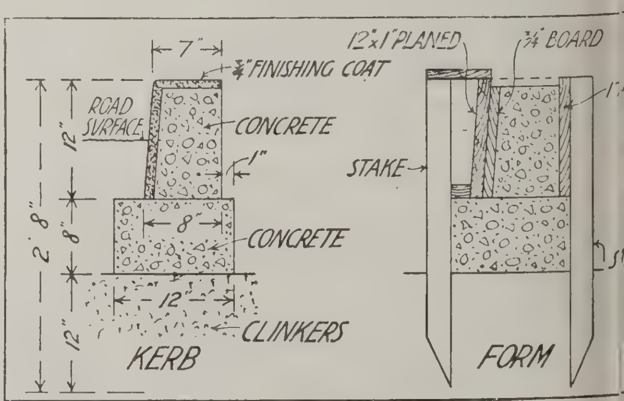
Figures of official tests carried o "Bennis" machine-stokers and com air furnaces as compared with firing are tabulated in the pamphlet also contains interesting drawings stokers on various types of boile may be obtained from Messrs. Ed. and Co., Ltd., Little Hulton, Bol 28, Victoria Street, S. W.

Now that, under war conditions, become a formidable item of expens is obviously the greater need to get the utmost return for the outlay. tects and civil engineers, as well power-users they are called upon to will welcome this means of ensur most complete combustion of every that can be made to yield effective









CONCRETE ROADS AND KERBS.

ELECTRICAL NOTES.

The "Brilliant" Suction Cleaner.

v electric cleaner of the above name has recently been
ed by Messrs. Simplex Conduits, Ltd., which is listed
eally popular price of five guineas. Special attention
n given to the electrical and mechanical design of the
ed motor with which the cleaner is fitted and also to
formation of the cast aluminium fan blades. It is
that the "Brilliant" cleaner has a very high efficiency
ates an unusually large suction for an apparatus of this
d that the two parts referred to are largely responsible
e virtues. The diamond-shaped shoe is a patented
of the machine, and is fitted with castors which permit
ner to run very easily over carpets and rugs, and at all
suck in the air regardless of the thickness of the mate-
he shoe is also fitted with a revolving brush, which
p threads, etc. An attractive booklet describing and
ing the cleaner has been issued by the makers, and
overprinted with the dealer's name and address can be
request.

same makers have placed on the market a small iron-
itch of new design. On account of the retrograde ten-
n the design of these accessories during recent years,
leged that everything has been sacrificed to cheapness,
believe that this is generally the case. Bases have
ade of porcelain, which is wont to crack; brass parts
een skimped, hinges have acted as part of the current
coupling bars have been far too fragile; and
ng spindles have been badly adjusted and far too rigid.
imed that the Simplex Switch has none of these defects.
rts are mounted on a slate base, and the cast-iron case
insulating lining, there being a thick rubber gasket
n the cover and the case. When the switch is in the
osition the cover cannot be opened, nor can the switch
ed when the cover is open. The switch, which is of a
able pattern, is rated at 30 ampères and listed at 19s.

Half-Watt Lamps and Fittings.

introduction of the half-watt lamp has hardly made
lt in domestic circles yet, on account of the high candle-
for which the lamps are still rated. But for public
g, both indoors and outdoors, it is commencing seriously
pete with groups of ordinary metal filament lamps and
rc lamps. The competition with arc lamps has been
ed more severe owing to the enhanced price of carbons
he commencement of the war, apart from the fact that
s practically no difference in efficiency, and no trimming
ndance is necessary. The intrinsic brilliancy of the half-
mp is a special feature besides its high efficiency, and
ature is bringing about a radical change in the methods
oor lighting where the lamp is used. The eye cannot
uch brilliant sources of light, and therefore a great fillip
en given to indirect or semi-indirect systems of lighting
half-watt lamps are employed. In suitable indirect
, the half-watts give an economical as well as a perfect
of illumination. An installation of this type has recently
itted in the new grocery and provisions department of
Selfridge and Co., Ltd., in Oxford Street, where B.T.H.
Rest" fittings and half-watt lamps are used to advantage
ve a beautiful effect, free from glare. It is really one of
installations that are better appreciated if seen than if
ed.

The "Autophone" System.

srs. Siemens Brothers, and Co., Ltd., have adapted their
of automatic telephones for public service to domestic
usiness purposes, and in a list just issued they describe
for twenty-five and fifty lines, suitable for factories,
ouses, offices, etc. It is claimed that quick and secret
unication is obtained between the various departments—
t, the setting up of a connection and the call of the
ed line takes place practically instantaneously. The
device consists of a dial with holes near the circumfer-
umbered from 1 to 9 and 0. In order to give a call, the
er is lifted off the hook, the forefinger is placed in the
orresponding to the first cypher of the number required,
he dial is then moved round as far as it will go and
ed, the operation being repeated for the next cypher. If
umber required is disengaged, the bell of the called
ment rings for one second at 5 sec. intervals, and con-
to do so until the receiver is raised. Conversation is
arried on and concluded by hanging up the receiver in
sual manner. If the called instrument is engaged an
ed signal is heard in the caller's receiver. Of course, the
feature of the system is the central switching apparatus,
is entirely automatic and is actuated by so-called pre-
ors and relays. Full particulars of the apparatus and
ories are given in the pamphlet and prices will be quoted
plication.

Whenever you require
METAL TABLETS
of any type—
no matter whether
the lettering is to be
cast in brass or
bronze, repoussé in
copper, bronze or brass,
or engraved in brass,
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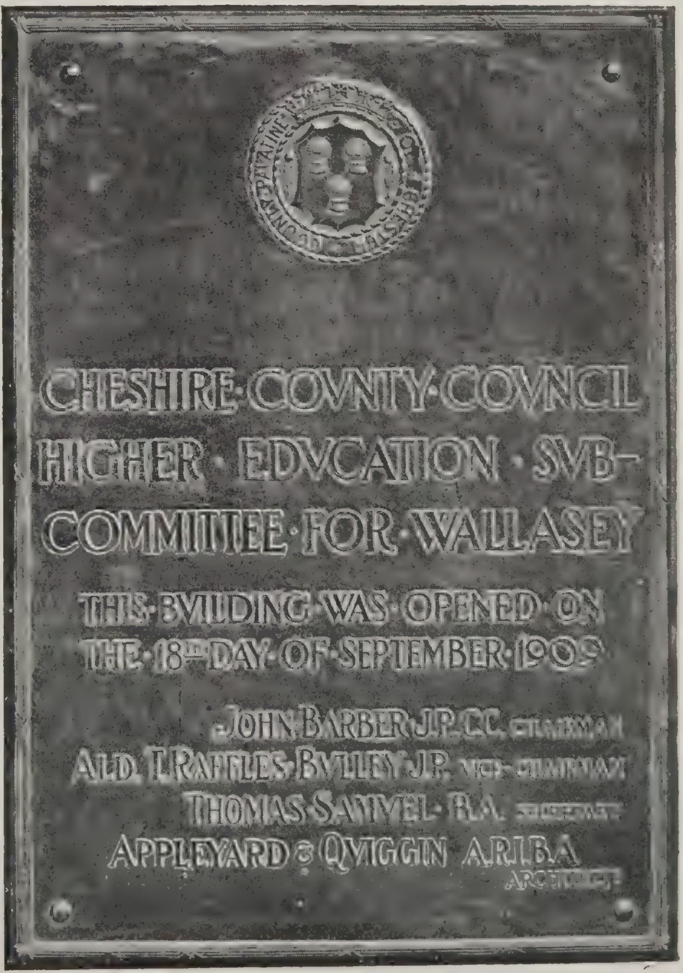
submit designs
and quotations
without delay.

Simplex Conduits, Ltd.,
Garrison Lane, BIRMINGHAM.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APPLEYARD & QVIGGIN A.R.I.B.A.
ARCHITECTS

PUBLISHER'S ANNOUNCEMENT.

THE question of the cost of Advertising is governed entirely by the circulation of a publication. The prices for small Advertisements enumerated below are framed upon the lowest possible basis in order to allow the use of the columns of the Journal for "Wants," &c., at a figure well within the reach of everyone.

Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

Appointments Wanted.

4 lines (about 28 words) 1s. 6d.; 3 insertions, 3s.

ALL-ROUND Machinist and saw-sharpener; country preferred.—C. B. P., 182, Hertford Road. Lower Edmonton.

ARCHITECT'S Assistant (30), seeks appointment with architect or structural engineer; working drawings and details; experienced in structural steel and reinforced concrete design and detailing.—Box 504.

ARCHITECT'S Assistant; 20; good draughtsman, knowledge of measuring, setting out; tracing, also levelling; very efficient typist; near London preferably; salary 25s.; excellent references.—Box 9193.

BUILDER'S Manager and Estimator.—Advertiser with 25 years' experience in the building trade seeks re-engagement; thoroughly capable, energetic, and used to supervising contract jobbing or decorating work; thoroughly accustomed to taking off quantities, measuring up, estimating, preparing plans and accounts, and interviewing clients and architects; at liberty when required; good references.—Box 9169.

BUILDER'S Foreman seeks re-engagement; age 41; trade, carpenter and joiner; eight years' with late employer; experience in school, church, and theatre work.—Foreman, 86, Brunswick Road, Leyton, N.E. 9197

BUILDER'S estimates prepared, variations measured and adjusted, drawings for local authorities, and general assistance rendered by Building Surveyor; prompt attention and moderate charges.—H. P., 49, Venn Street Clapham. 9198

CLERK of Works; thirty-five years' experience in all branches of the building trade; thoroughly practical and reliable; seven years' experience in school work; first-class references and testimonials.—W. Robbins, Loake's House, High Wycombe.

CLERK of Works seeks engagement; thorough practical experience in all trades; quantities and measuring-up; good references London and country architects.—Address W. P., The Ivies, Hereford Road, Abergavenny. 9206

CONTRACTOR'S General Foreman; carpenter; 42; expert draughtsman; prepare all details; measure all trades; dumpy level; strict investigation courted; medallist, Worshipful Co. Carpenters.—A., 81, The Avenue, Bedford Park, W.

EXPERIENCED Assistant, beyond war service age, desires temporary engagement in London; terms by arrangement; two to three guineas per week.—Address T. C. Y., 56, Addison Mansions Blythe Road, Kensington, W.

PAPERHANGING wanted (piecework); high reliefs, anaglyptas, leathers, embossed papers, soirettes, tekko, fabricona, canvas, emdeca, and all latest productions; artistic panelling and special designs; town or country.—Logan, 49, Mostyn Road, Brixton, S.W.

THE Association of Builders' Foremen and Clerks of Works, 56, Old Bailey, E.C.—Experienced Foremen and Clerks of Works can be obtained by applying to the Secretary, Mr. J. W. Sawyer, 214, Clapham Road, S.W. Competent foremen and clerks of works are invited to join this Association. 8289

YOUNG Architect (24), recently discharged from R. E., now desires berth as architect's assistant or estate steward, in good office; last engagement in a county office; 8 years' experience, excellent draughtsman and designer, details, quantities, working drawings, perspectives, surveying, etc.; excellent testimonials.—M. Cox, Architect, Highbridge, Somerset. 9200

Offices to Let.

GRAY'S-INN.—Room to let, to one or two architects or surveyors, facing gardens, first floor; moderate inclusive rent.—Apply J. Wilmer Hives, 5, Verulam Buildings, Gray's-Inn, W.C. 506

THREE rooms in main thoroughfare, close to Ludgate Circus—Rent £95 inclusive. Excellent situation for showrooms of manufacturing firm.—Box 9202

Appointments Vacant.

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ARCHITECTS' WAR COMMITTEE.

The Professional Employment Committee have under consideration certain schemes of work with a view to affording small temporary employment to architects who are without work in consequence of the war. Applications can only be considered from British architects dependent on their profession for a living, whose present difficulties are directly due to the war, and who are not eligible for military service. Applications should, in the first instance, be made to the Hon. Secretary of the Professional Employment Committee of the Architects' War Committee, 28, Bedford Square, W.C. 9168

Miscellaneous.

6d. per line.

BOOKS.—Books on Building Trades, Engineering, Educational, Literary, Technical, and all other subjects; second-hand at half prices; new at 25 per cent. discount; catalogue free; state wants; books sent on approval; books bought; best prices given.—W. and G. Foyle, 121-123, Charing Cross Road, London, W.C.

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THE
ARCHITECTS' & BUILDERS JOURNAL.

Wednesday, April 14, 1915. Volume XLI. No. 1058.

No. 131.

(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 14, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 105

EDITORIAL.

TO whom should the sub-contractor look for payment? An appeal recently decided by Lords Justices Buckley, Pickford, and Bankes—that of Hampton v. Glamorgan County Council—seems to reopen a question that was commonly, but much too hastily, thought to have been finally settled by the decision in the leading case of the Crittall Manufacturing Company v. London County Council, in which the building owners were held to be responsible, because, as Mr. Justice Channell said, in his judgment, the contract was really made in fact on behalf of the London County Council as the real principals, and "to procure something for their benefit, to become their property, and that as regards the terms of the contract they were the persons interested, and not the builders." Since references to this case are so frequent, it will be useful to note that it was reported in our issue of November 30, 1910.

* * * *

There is always a tendency to draw too large an inference from a legal precedent, and in this respect the Crittall case is by no means exceptional. That it settled the position of the sub-contractor in so far as it made good his claim as against the building owner, has been much too freely assumed, as the Glamorgan case seems to show. To a certain extent the two cases are strongly similar. In each the claimant is a sub-contractor claiming against a county council. In the Crittall case, the sub-contractor supplied metal casements. In the Glamorgan case, a heating installation was the subject of the claim. But an important difference should be noted—namely, that whereas in the London case the Council expressly sanctioned the acceptance of the sub-contract, it would appear that in the Glamorgan case the council remained in the background. At the trial of the Glamorgan action, in the King's Bench Division, on July 16, 1914, Mr. Justice Horridge thought that the question was whether the sub-contract was entered into on behalf of the builder, or whether the council were the principals. He held that the council became principals through their agent the builder. It is this decision which has been reversed on appeal, Lord Justice Buckley holding that the contract was between the builder and the sub-contractor. With the Crittall case decision that the building owner is responsible to the sub-contractor, and the Glamorgan case decision that he must look to the builder, chaos comes again; and the one point that is clear is that the matter has not yet been determined upon any broadly comprehensive principle, but that the issue depends as much as ever upon particular circumstances that in each case must be threshed out in a court of law. In one respect the issue has been narrowed down, the chief question now being—and what a whetstone for legal wits!—whether in any given case the Crittall or the Glamorgan decision is the more relevant to the specific facts; but clear contraction, so far from preventing litigati rather tend to promote and protract it.

* * * *

One cannot help sympathising with th contractor in such cases. His position is ce unenviable. As a rule he supplies goods for he ought to get the money, as well as a retur his out-of-pocket expenses. Now, these g whether they be metal casements, or a heating electric installation, or sanitary fittings, o furniture or what not—become the property building owner, who should therefore pay fo As a rule he does; but the mischief is that he pays the man who has not supplied but has ordered them. If this man fails, it is as unfair t building owner should be compelled to pay twi as that the sub-contractor should lose his mone it must not be overlooked that to saddle a b owner with liabilities to half a dozen or mo contractors would neither encourage building prise nor strengthen the principal contractor's s responsibility. It is not easy to suggest a m avoiding this dilemma. If bankruptcy we among builders, it would be hardly worth w labour the point; but the cases in which, fr cause, the sub-contractor suffers material loss numerous that those who are liable to it o combine in a determined effort to work out th salvation, and their first step should be to evol form of contract affording them a reasonable of protection. The new conditions of contrac have been so long in process of incubation likely to give them relief unless they press for

* * * *

Explorations that are in progress under the of St. Mary-le-Bow, Cheapside, do not seem, s have yielded any very important discovery rel the object of the investigation, which is to theory that the site was once occupied by an " Saxon" church. Wren's building, which was between 1671 and 1680, stands upon a Norm which is perhaps contemporary with the portions of the Tower of London, and is p earlier than the Norman work in the Temple but excavations below its floor-level have p nothing more interesting than a few fragm ancient pottery, and the remains of an old w yet unascertained character. It has been surely very reasonably—that the present opp should be taken of thoroughly clearing out th part of which is walled off as a vault for the st coffins, an arrangement that, besides being un and insanitary in itself, has a disastrous effec appearance of the crypt by obscuring some of ting architectural features, such as the vaulting ie fine old columns with their cushion capitals. iis crypt which, forming a series of "bows," or , gives the name to the church as well as to the astical Court of Arches which formerly met There are some enthusiasts who still hold that eple, 235 ft. high, is not only Wren's masterpiece kind, but is "the finest Renaissance campanile world," which is a wild and whirling thing to say masterpiece. It is no doubt the handsomest of steeples, even on comparison with St. Bride's, Street; St. Vedast, Foster Lane; and Christ 1, Newgate Street. Its chief rival, Gibbs's of St. Martin-in-the-Fields, is often preferred iitects for its greater simplicity: it wears less the *tour de force*.

* * * *

mporary addition to the War Office is being 1 St. James's Park, and the necessity for it is thought-provoking. When, at the beginning present century, the new War Office was ed, the accommodation it provided was no doubt ered to be more than adequate. It is only in the hool of experience that we are realising the dual ance of Tennyson's monition: "Pray Heaven eatness may not fail through craven fear of great." With respect to our buildings, we have lways too much obsessed by that fear, and the Office is a monument to it. Perhaps fear is too a word; let us speak rather of the national y, which, however, is as much overdone as the e characteristic in the foe. Certainly our War does not, either in its size or in its treatment, s the beholder with an overwhelming sense of eatness of the Empire. Its principal front, to iall, runs but to 250 ft. and, though the White- ace façade is 500 ft. long, the return along iall Avenue takes so sharp an angle inwards as e a good third of the 500 ft. front with no more one-room depth, rendering this portion of it a sham. No doubt the architect, the late Mr. n Young, F.R.I.B.A., made the best of a lly awkward site; but to place towers at the for no better reason than that of masking the arity savours less of art than of artifice. We m the less when we realise the reason for them, gh here, again, it would be distinctly unfair to the architect for an adroit expedient by which rcame a formidable difficulty.

* * * *

aps, as a result of the larger conception of 's martial spirit and resources, we shall in time igger and more expressive War Office. Then sent building might be turned over to the new y of the Industrial Arts and Sciences, or what- are to call the Department that must mobilise iness forces; for certainly our army has vastly vn it, and is likely to remain much too big for after peace is declared, because shrinkage to "contemptible little" standard would be incom- with our new place among the nations. More alisation of the greatness of our country, and a obust determination to give due expression to ger concept, must certainly be reflected in our public buildings—not only in those directly to the Government, but in civic buildings also, pecially in our school buildings, which surely convey at least some hint of the national ns and ideals to the dawning intelligence of the rs of them. As a consequence of the war we certainly build more nobly; which does not rily imply less economically.

* * * *

suggested, in the Board of Trade pamphlet h we have previously called attention, that there should be established in this country an association of designers, manufacturers, and distributors, comparable to a similar institution in Germany; but the conviction grows upon us that the commercial and industrial interests of the nation should no longer be left to spasmodic voluntary effort, which never achieves anything on a national scale. It was not until State control was established, and compulsion was introduced, that elementary education became effectual; and it grows increasingly evident that it is only through similar drastic measures that technical education can be rescued from futility and ineptitude. From the educational ladder no rungs should be missing. Until quite lately the elementary school was an almost entirely isolated institution—a blind alley. When the children had passed through the standards the educational authority took no further interest in them. They were left to do the best they could for themselves, often, as may be easily imagined, with most deplorable moral and material results to the individual and to the community which took them in leading-strings thus far and no farther.

* * * *

Within the past few years, however, well-intentioned and encouragingly successful efforts have been made, notably by the London County Council, to ascertain what the school children are fit for, and to put them in the way of getting hold of it. Trade schools have been established—notably the Brixton School of Building, the Northampton Institute, the Battersea Polytechnic, and the Central School of Arts and Crafts—trade scholarships have been provided, and any case of marked aptitude is noted and encouraged. But this movement is merely incipient, and is liable to disturbance or cessation at any moment. It must be rescued from these risks, and be made so conspicuously the care of the State that parents will no longer object to the study of design, or of applied science, and so forth, because they "cannot see what it is going to lead to," which is the common excuse for withdrawing a student of promise from a career for which he has shown aptitude and putting him to inferior work for which the demand is more clearly obvious. State intervention is the only cure for this form of blindness. And it is impossible not to agree with the remark made by Mr. Halsey Ricardo the other day to the effect that our elementary schools present, with respect both to the buildings and the pupils, an uncultivated field that might be made fertile in the production of decorative design and designers.

* * * *

There can be no doubt that in this country the value of systematic architectural education, as well as of architectural education generally, is seriously and injuriously underrated. That only about 10 per cent. of the "possibles" think it worth while to avail themselves of the splendid facilities now afforded by our architectural schools is a humiliating instance of the national apathy, and of the inveterate national vice of preferring "to muddle along anyhow" rather than to proceed systematically and scientifically upon ascertained principles. How far in this respect we lag behind other nations was made very clearly apparent in the fascinating description of "Life in an American School of Architecture" specially contributed to this Journal a few weeks ago. Four years of such a life, with the fine stimulus of its friendly rivalries, with the free intermingling of minds of diverse types—in itself a liberal education—and with the wise governance of experienced guides through a maze that would be otherwise bewildering, with its gaiety and excitement, its high aspiration and strenuous endeavour—such a life can hardly fail to produce a splendid type of manhood, as well as the professional proficiency which, even if it were attainable apart from these joyous and fruitful collegiate and communal influences, might easily degenerate into the barrenness and sterility of a "cloistered virtue."

* * * *

We had special pleasure in printing those articles on "Life in an American School of Architecture," not merely because they were written with exceptional brilliancy, but—and mainly—because of their spontaneous revelation of the student's view. No architect reading them could help envying those American youths their rich opportunities for self-development. It is only by measuring himself against his fellows that a man shall ascertain approximately his true weight and stature, and arrive at a just estimate of his powers and his weaknesses. In the frank give-and-take of those four communal years he shall arrive at a juster self-estimate than might come to him in a lifetime of segregation. And, besides rubbing off his angularities and his rusticities, and acquiring some fairly shrewd notions of how the world wags, he learns about his art, it is evident, as much from his fellows as from his teachers, and, one may suspect, learns it more willingly and more thoroughly from the former than from the latter.

HERE AND THERE.

THE War, they say, is going to alter our ways very radically. The men from the Front, after having been in life-and-death touch with efficiency, will regard things in a totally different way from what they were accustomed to before the War. There will be architects home from the Front as well as bricklayers and schoolmasters and insurance agents, and in accordance with current speculation they will want to take their part in the general revision of national life and industry. How far their contact with France and Belgium will affect their architectural ways remains to be seen, but it seems to me very doubtful whether architecture and building in the England of the future will be much influenced by the War. There are those who think that eventually we are all going to be cosmopolitanized, so that an architect being spun round three times, whisked off on an Arabian Nights carpet, and set in the midst of new buildings, would open his eyes in wonderment as to whether he was in Pimlico or Petrograd. But we are a long way yet from that consummation. It would perhaps be nearest the mark to say that French architecture will exert a still greater influence in the years to come than it has in years gone by, and when we take stock of the past it is certainly remarkable what a wealth of fine example France has offered us for the past two centuries at least. But if there is going to be a casting overboard of the old trammels and shackles, and a concentration with new life on a new world, then let us hope there will be a solid endeavour to get again the magnificent unity of effort which we associate with the word "tradition."

* * * *

I will venture on a declaration of faith in a round dozen of assertions—(1) That the curse of modern architecture in England for the past half-century and more has been the striving to be individual; (2) that we have been regaled too long with rhetoric about the underlying spirit of a building; (3) that the things that matter are, good planning on architectural lines, appropriate and pleasing exterior form, and sound building; (4) that, for an architect in being, life is too short to spend much time on groping among archæology and scraps of archaic buildings; (5) that a man with a true eye for form and a practical talent for observing good proportion and good taste in all his work is worth a whole meeting full of architect-archæologists who are excellent on temple ruins but
whose buildings give you the architectural
as you pass them, and make you wish that the
be cast forth into outer darkness; (6) that rei
concrete is not going to give us a new style o
tecture; (7) that we do not want a new style c
tecture if by that is meant something quite
from what has been done already; (8) that it i
to crib old work and apply it intelligently and
to new work than to insist upon just that
yourself which is the part that spoils the wh
that the back-to-the-land architect and the
crafty architect and the garden-suburb arch
big barge-board, ponderous roof, and elephanti
case fame are all and equally on the wrong tra
that the three best and purest periods of
domestic architecture were the Tudor, the Geo
the mid-eighteenth century, and the architect
century ago; (11) that in commercial buildi
general failing is to worry the façade with
courses and carved drops and hood moulds and
columns till it becomes exasperating; (12) tha
tectural education is the solution of all evils, an
co-ordinated system throughout the Kingdom
only way in present circumstances of raising
architecture to a general high level.

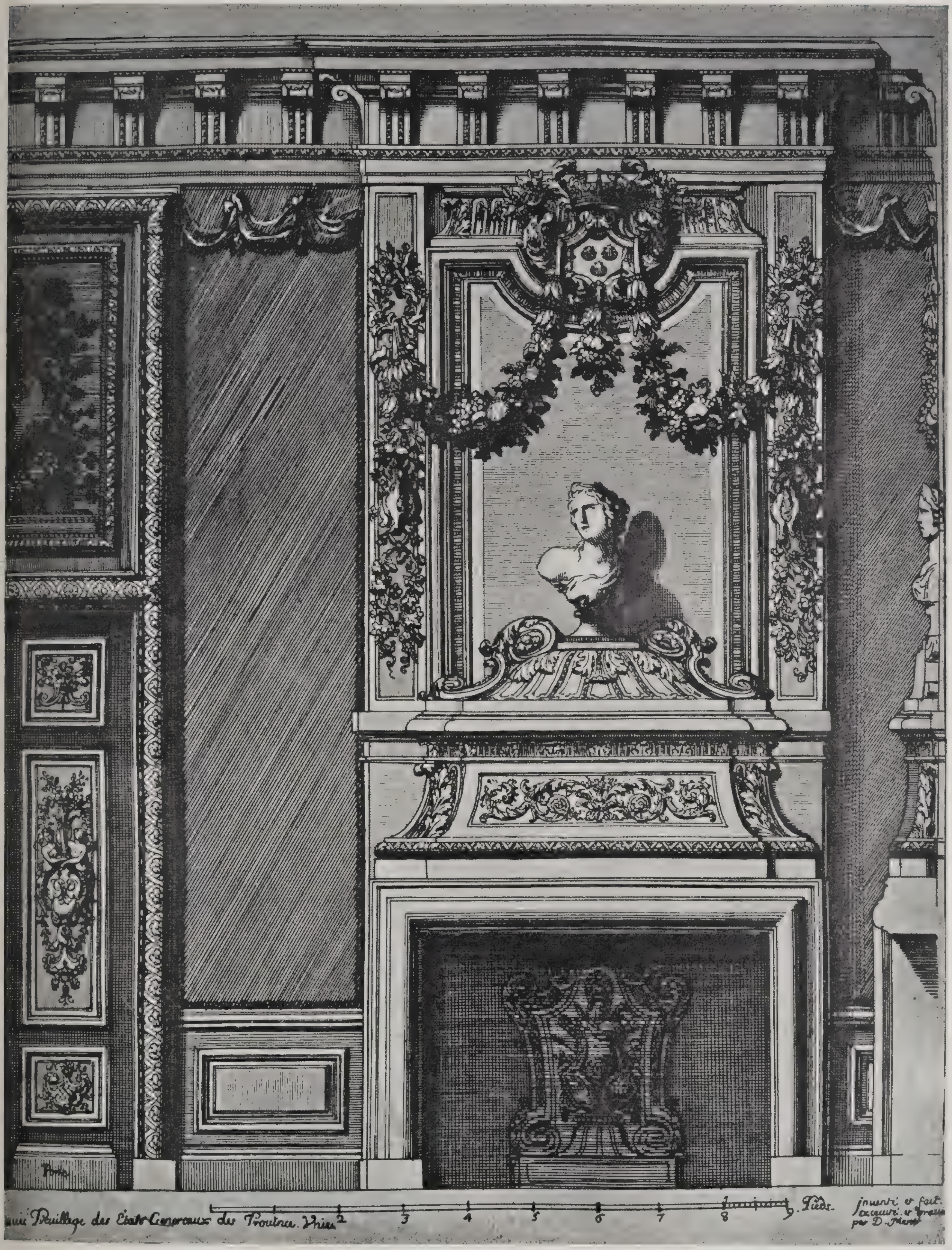
* * * *

Looking at the front of the Institute pre
Conduit Street the other day, I wondered wha
wrong with it that some desired to replace i
modern front, and I soon came to the conclus
there was very little wrong with it, that it was
a delightful façade, marred only by the absen
window bars which disappeared when plate-gl
upon the scene. The Institute should be very
of their front, and should warn off the spoile
to do something better. There is a scholarly
this façade which is very proper to the headqu
the architectural profession in this country. It
to a period when classical architecture wa
handled than it is to-day, and its obvious mer
assure its preservation. But the Institute mi
depute its most skilful member in these matte
back the window bars; to fill in the fanlight
entrance, which looks rather bare as it is at
and to replace the railings with others more
the fine façade behind them.

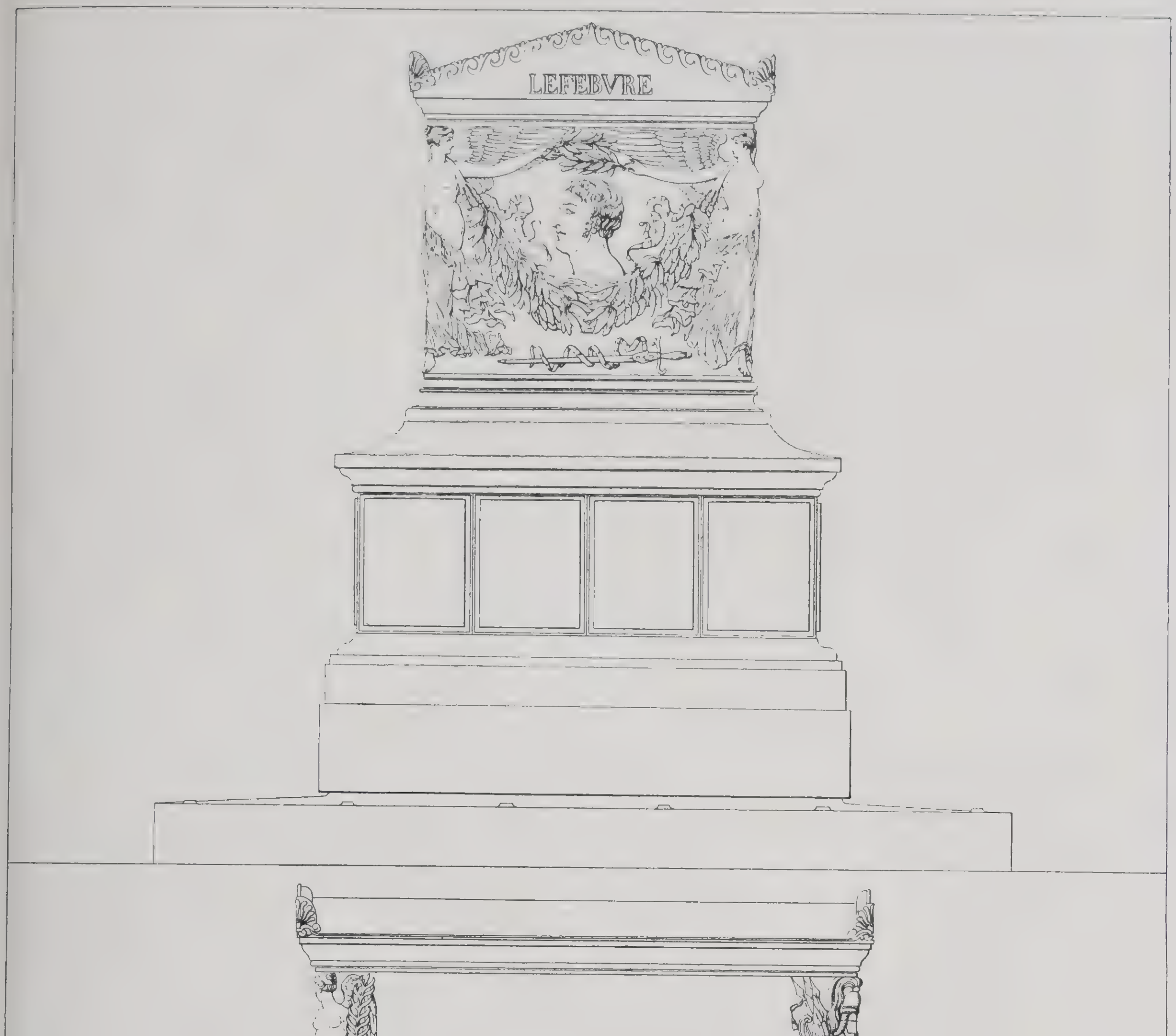
* * * *

Last week I saw another example of that
fashion of putting a crude brick chimneypie
"old-fashioned" feature in a modern dini
And the sight of that chimneypiece spurs me t
once more against the practice. I might n
architect who was the original culprit, but that
be, for the Law Courts are still with us, and
within those legal walls does not fall always
brave: not infrequently the expert witness
the honours, with costs. But apart from the
ness of the original crime, there is no gainsay
it is alluring to many among the profession,
because I believe the notion to be altogeth
that I enter upon another protest. That brick
piece is enough to stir Wren and Chambers
graves, a fragment taken from an apartme
everything was crude in keeping with it, and
most incongruously in a modern room, whic
gentlemanly politeness. No, the silver vase
brick niches and the little photograph frame
brick mantel will not fit in with the Sheraton s
and the chintz-covered chairs. And while on
ject of chimneypieces I would refer to anoth
of the modern architect. Carefully does he
his storeyed surround, and then as the real occ
so much effort a little grate is seen below
smothered. It is just a diminutive hell-fire u
altar-like pile of architectural woodwork.

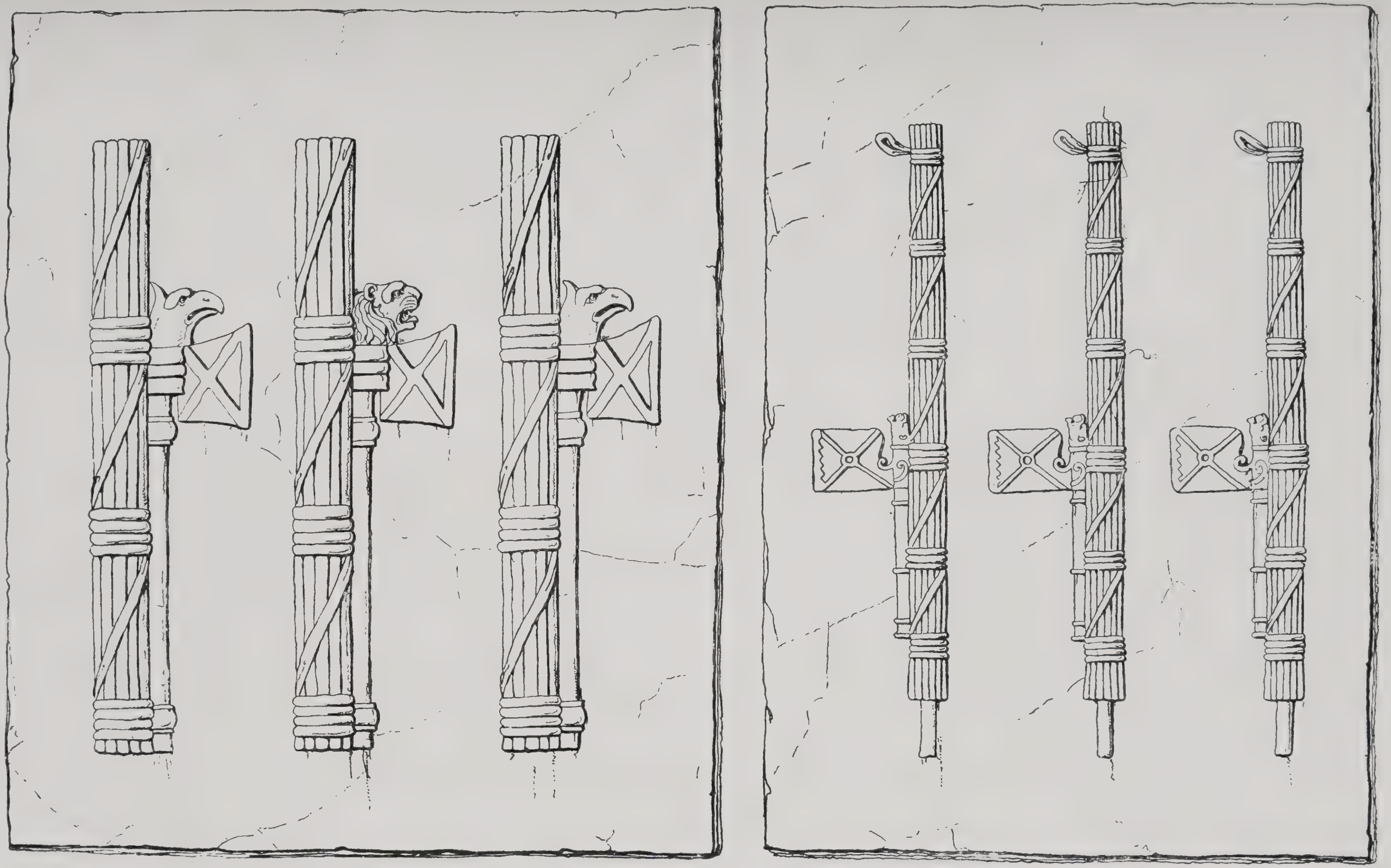
U


Porte
Treuillage des Etats Generaux du Province Vtrec
2 3 4 5 6 7 8 9 Pieds.
inventé et fait. executé et gravé par D. Marot

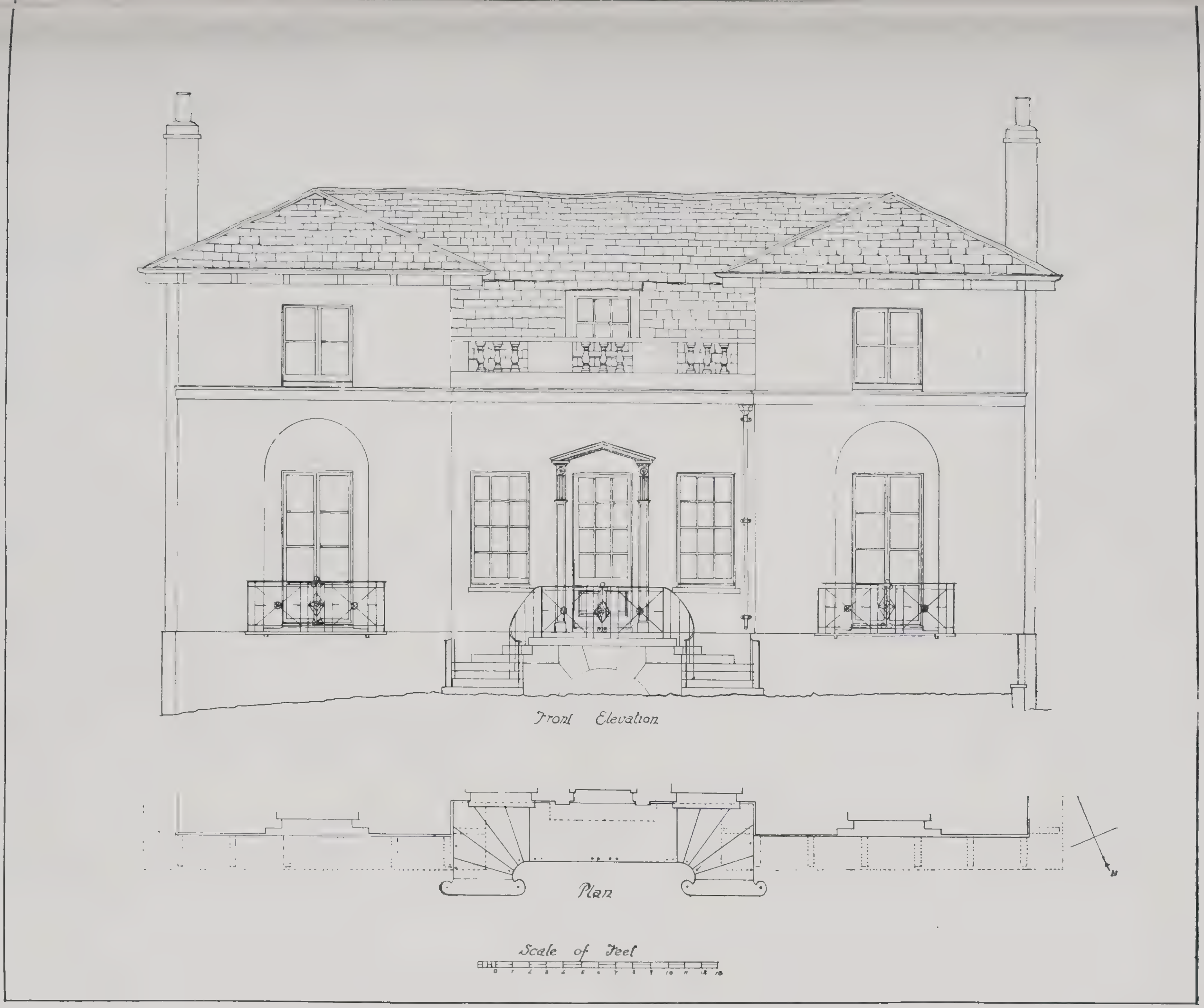
DESIGNS BY DANIEL MAROT. V.—A CHIMNEYPIECE.



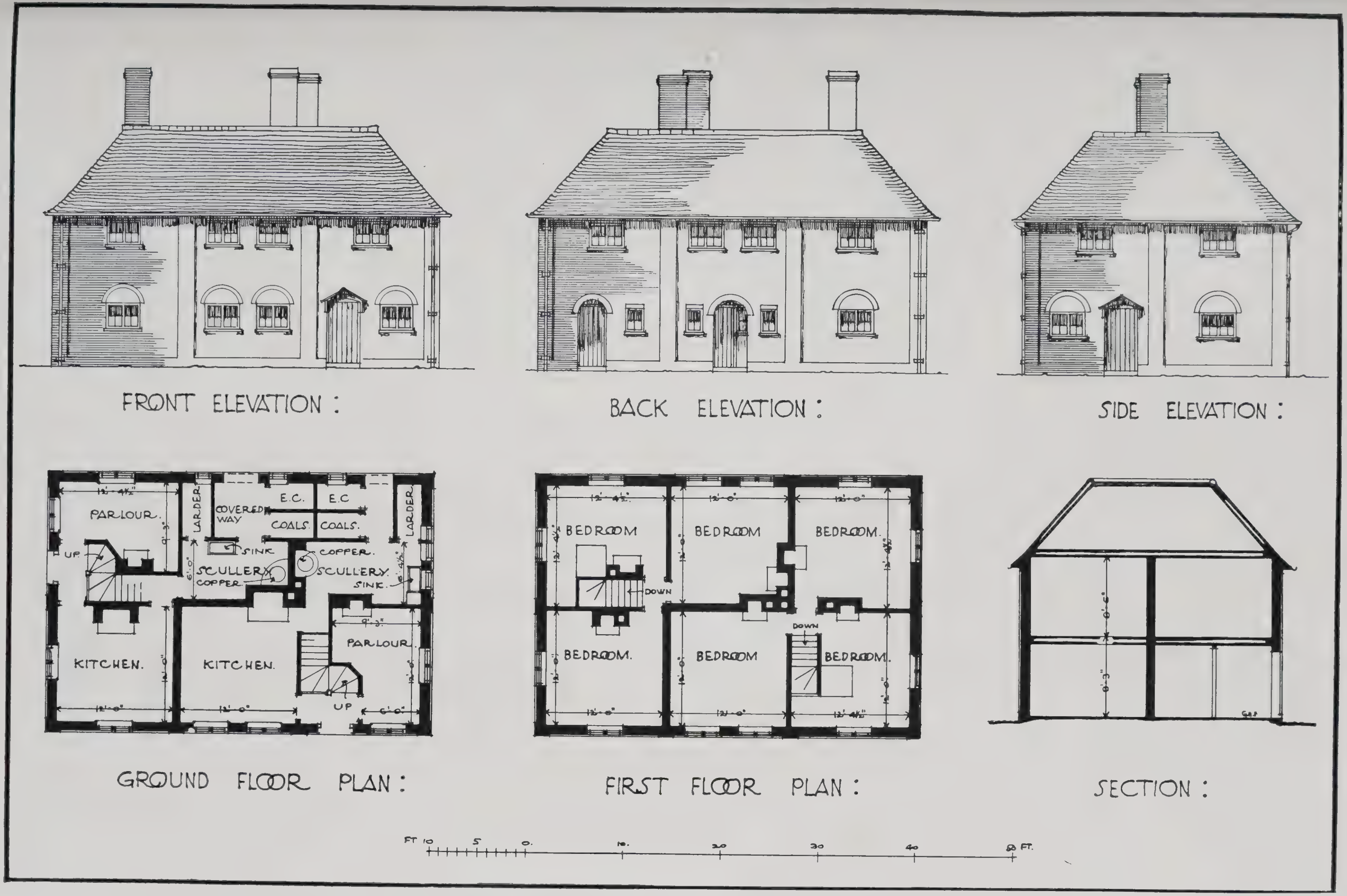
FRENCH MONUMENTS. XII.—LEFÊBVRE MONUMENT IN CEMETERY OF PÈRE LACHAISE. PARIS.



DRAWINGS OF ROMAN ORNAMENT. VIII.—ANTIQUE FASCES FROM BAS-RELIEFS AT ROME.

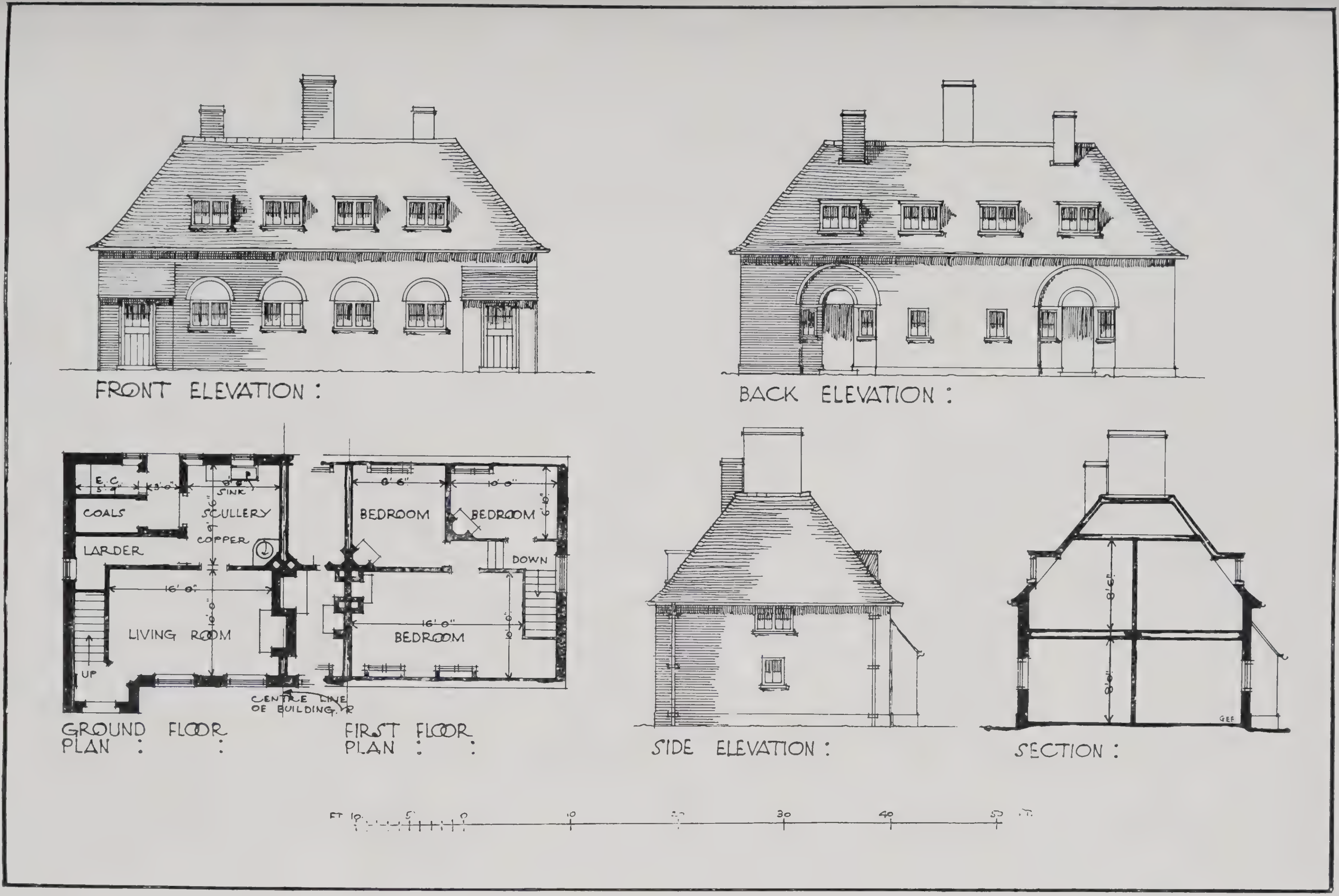


SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XVII.—HOUSE AT KENNINGTON OVAL, LONDON, S.E. (NOW DEMOLISHED).



MODERN DOMESTIC ARCHITECTURE (SERIES II.). X.—PAIR OF COTTAGES AT EAST CLANDON, SURREY.

H. S. GOODHART-RENDEL, ARCHITECT.



MODERN DOMESTIC ARCHITECTURE (SERIES II.). XI.—PAIR OF COTTAGES AT EAST CLANDON, SURREY.

H. S. GOODHART-RENDEL, ARCHITECT.

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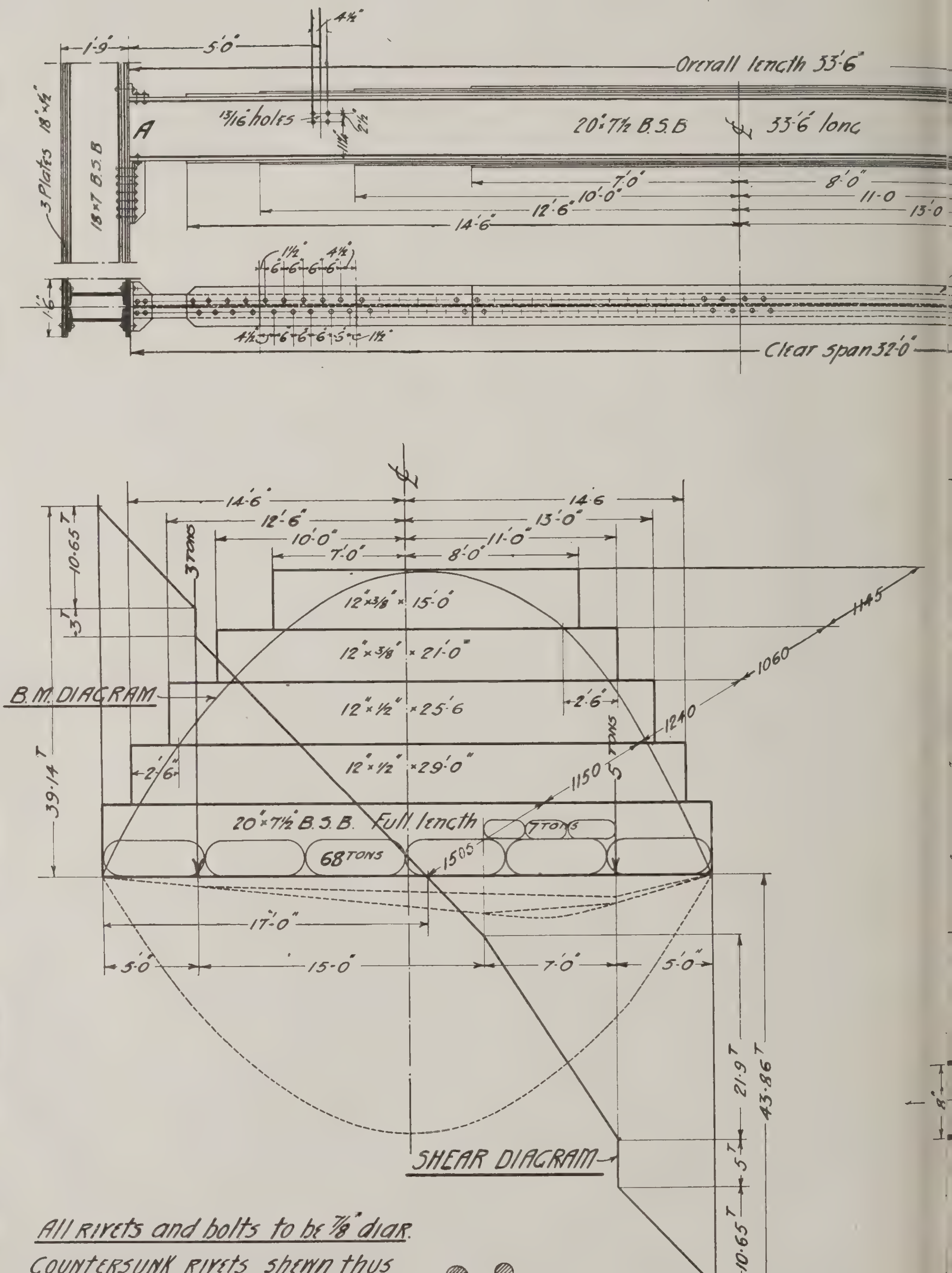
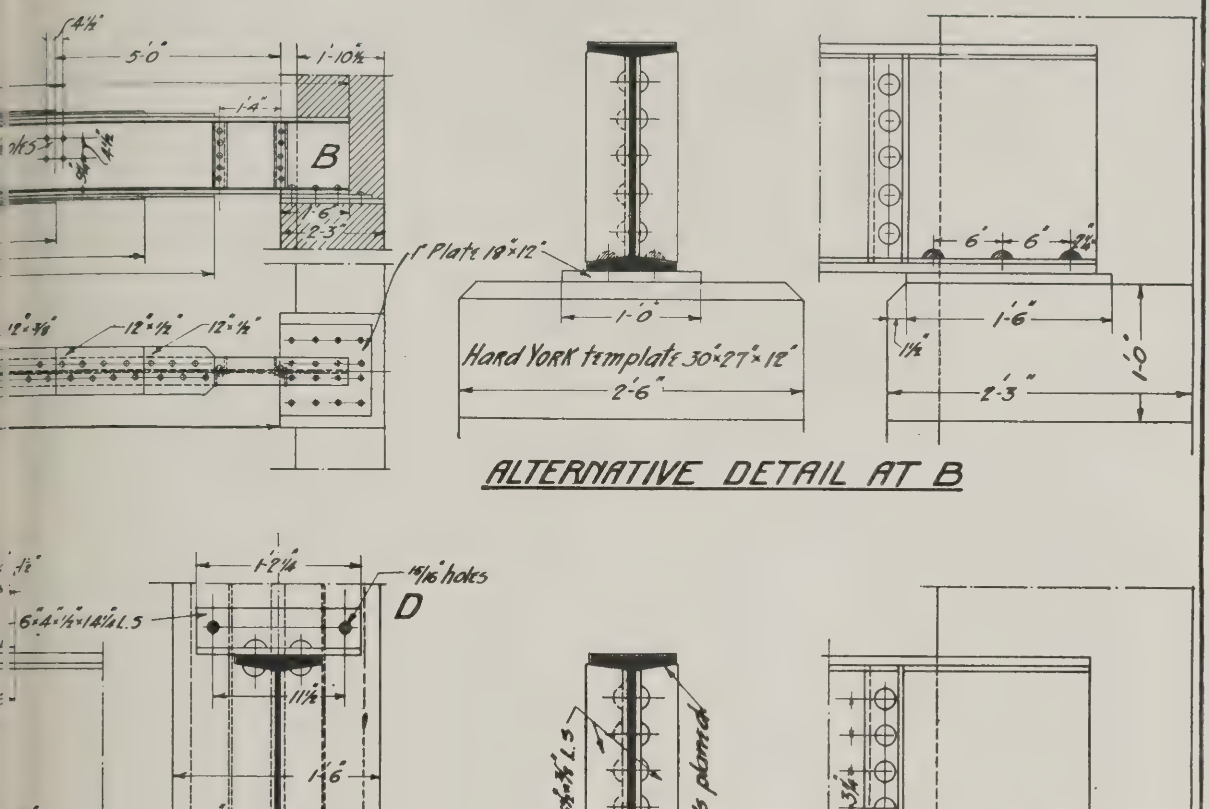


All rivets and bolts to be ⅞" diar.

Countersunk rivets shewn thus

GIRDER



ALTERNATIVE DETAIL AT B

HALF SECTIONAL PLAN AT C

HALFPLAN AT D

TAIL AT A

DETAIL AT B

STEEL FRAME BUILDINGS.—I.

THE PLATES.

Chimneypiece by Daniel Marot.

NIEL MAROT'S designs for interior decoration show an intermingling of French and Dutch forms that gives a quite distinctive Compared with the finest French work, esigns suffer by reason of a certain element of ness; on the other hand, they derive from this quality a marked robustness. Marot delighted se built-up chimneypieces, with floral and other ent disposed in profusion around the architec- lines. The example shown in the present issue y typical of his method. One thing which his is are calculated to emphasise is the complete- vith which interior decoration was viewed by l Marot and those of his period. To-day too we see an elaborate chimneypiece quite ted to the rest of the room, which is left without le architectural ornamentation. In Marot's work s pre-eminently not the case; panelling, door- over-door pieces, and fine cornices being all ed with the chimneypiece so as to form a com- harmonious scheme.

Monument to Lefèbvre.

tomb of Marshal Lefèbvre, Duke of Dantzig, is of the most notable in the cemetery of Père ise, Paris, both for the purity of its style and the uality of its execution. It is entirely of white e. On the principal face are two figures of Fame ing the Marshal with a wreath of oak leaves, and opposite face are two trophies with the arms of uke between them; while below are inscribed the sive grades through which he rose, and the chief s associated with each. On the two sides of the nent are bas-reliefs of the chief feats of arms of al Lefèbvre, with inscribed tablets below. A n and plan of the monument, with some details of ouldings, will be given next week.

Roman Ornament.

ces were made up of a bundle of rods having them an axe with the blade projecting. They arried before the Roman magistrates as a badge hority and an indication of punishment. The liefs shown on the plate are of antique fasces he Massimi Palace and the Vatican, Rome.

House at Kennington Oval.

nington is rich in houses of the Late Georgian , several fine examples of which have already llustrated in our series. The house shown this is unfortunately no longer standing, having been ished a few years ago to make room for a rebuild- The façade is a pleasant composition, very , as it should be, and its parts well proportioned e another. The treatment of the entrance is larly successful, with two curved flights of stairs g to the landing outside the front door; the iron- of the stair balustrades and the balconies to the d-floor windows on either side being of that graceful character which distinguished the . The house was stuccoed, and the roof slated.

Cottages at East Clandon, Surrey.

two pairs of cottages at East Clandon, Surrey, d from the design of Mr. H. S. Goodhart-Rendel, stminster, are interesting as showing what archi- al character can be secured even in small houses l out at a low cost. The pair shown on Plate X. 668; the other pair, £563. The cottages have hollow walls built of purple stocks, with roofs of nd-made tiles.

A Compound Girder.

s is dealt with in detail on page 174, in the article ctural design in steel-frame buildings.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper. Every communication must bear the name and address of the sender.

Filling-in of Concrete Between Steel Floor Joists.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I have read with much interest the article by Mr. A. C. Meston, in your issue of March 31st, p. 153, on the "Moment of Resistance of R.S.J. Filler Floors." The result clearly shows that the filling in of concrete between steel floor joists adds far less than is generally supposed to the strength of the floor.

From the article I deduce the following: Assume the concrete to be 1 : 2 : 4 concrete properly constituted and the floor formed as illustrated in your Fig. 1, that is to say 5 in. by 3 in. R.S.J.'s, 2 ft. 6 in. apart, with 1 in. of concrete above the top flanges; then the increased strength of the floor due to the concrete is nearly 20 per cent. But this is assuming complete adhesion between the concrete and the steel joists.

Generally in practice I find the uppermost 1 in. of concrete is either omitted altogether or put on afterwards as "screeding," and in such a case your contributor shows that practically no increase of strength is obtained by the insertion of the concrete. I am, of course, not dealing with fire protection, for which purpose the concrete is of great value.

If anyone will take the trouble to apply the methods you illustrate, he will find that in floors, as commonly designed and used, practically no increased strength is obtained from the concrete, because either (1) the concrete is finished flush with the top flanges, (2) the steel joists are too far apart, or (3) the concrete is not of the quality above mentioned, and from one cause or another does not adhere to the steel joists sufficiently to ensure the two acting as one.

I trust the article will be widely read; it is an excellent guide to those who will use it.

London, S.W. SURVEYOR.

STEEL FRAME CONSTRUCTION.

IN the present issue, page 174, we begin a series of "Examples of Structural Design in Steel-frame Buildings Under the L.C.C. General Powers Act, 1909," by Mr. Percy J. Waldram, F.S.I. These examples, taken from actual practice, comprise typical large structural details—girders, stanchions, mansards, grillages, etc.—and, throughout the series, will be completely calculated and illustrated, the working detail drawings being reproduced on double-page loose plates, an arrangement that will be greatly appreciated as being exceedingly convenient for reference and study.

It need hardly be pointed out that, although dealing primarily and specifically with steel-frame construction under a particular Act of Parliament, the calculations and methods of design adopted are applicable to all constructional work of this kind; and in order to make the series as useful as possible to the general designer, the author has selected examples which involve the solution of the maximum number of those practical problems which are not dealt with in theoretical textbooks, but which constantly arise in the drawing-office.

In our Editorial pages we have repeatedly insisted on the national need—which has been brought into special prominence during the present crisis—for a more intensive study of technics, and the present series may be regarded as a practical contribution towards the furtherance of that object. Mr. Waldram, we are sure, will be glad to receive comments and suggestions.

EXAMPLES OF STRUCTURAL DESIGN IN STEEL FRAME BUILDI UNDER THE L.C.C. GENERAL POWERS ACT, 1909.

BY PERCY J. WALDRAM, F.S.I.

In the following series of articles six large typical structural members in steelwork, taken from actual practice, a calculated and detailed in accordance with the Act which—subject to appeal to a technical tribunal—regulates in London the of steel frame buildings with thin walls.

The primary object aimed at in the selection of the various examples has been the solution of those problems which fr arise in design under the Act, and are not dealt with in ordinary text-books. The details in some cases have also been p varied in order to incorporate a number of minor problems, and to include within a necessarily small compass a fairly compr survey of design in structural steelwork as applied to ordinary buildings.

I. A COMPOUND GIRDER.

A girder "AB" Plate I., 32′ clear span, carries the following loads :—

(*a*) A distributed load of 2 tons per foot run (including casing).

(*b*) A concentrated load of 3 tons at 5′ from A.

(*c*) A concentrated load of 5 tons at 5′ from B.

(*d*) A distributed load of 1 ton per foot run between points 5′ and 12′ from B.

The bearing B is on hard brickwork in cement and the end A is to be connected to the flange of a stanchion composed of two 18″ × 7″ rolled joists with six 18″ × ½″ plates.

Approximate Depth and Weight.

An approximation must first be made of the weight of the girder. A formula* which gives close results for rolled joists is :—Weight in tons $= \frac{WS^2}{1000d}$ when W = superimposed load in tons, S = span in feet, d = overall depth in inches. For compounds with cut off plates the results of this formula are high.

It indicates the economy to be effected by the use of deep sections. Joists 24″ deep are standardised and rolled, but are not always to be obtained easily, and the 20″ × 7½″ section may be adopted, with say 2″ of plates top and bottom, or 24″ deep overall.

$$\text{Approximate weight} = \frac{WS^2}{1000d} = \frac{79 \times 32 \times 32}{1000 \times 24} = 3{\cdot}37 = \text{say } 4 \text{ tons.}$$

Total distributed load = 64 + 4 = 68 = 2·13 tons per foot run.

Reactions.

The calculation of both bending moment and shear is made with the aid of the end reactions, the accurate computation of which is important. The following tabulation admits of the easy and speedy checking of each stage of this calculation before its results are used. Errors in the computation of reactions are very easily made, and the effect of such errors is often very far-reaching.

$$Ra = 34 + \left(\frac{3 \times 27}{32}\right) + \left(\frac{7 \times 8{\cdot}5}{32}\right) + \left(\frac{5 \times 5}{32}\right) \text{ Tons}$$
$$= 34 + 2{\cdot}53 + 1{\cdot}86 + {\cdot}75 = 39{\cdot}14$$
$$Rb = 34 + \left(\frac{3 \times 5}{32}\right) + \left(\frac{7 \times 23{\cdot}5}{32}\right) + \left(\frac{5 \times 27}{32}\right)$$
$$= 34 + {\cdot}47 + 5{\cdot}14 + 4{\cdot}25 = 43{\cdot}86$$
$$\text{Total} = 68 + 3{\cdot}00 + 7{\cdot}00 + 5{\cdot}00 = 83{\cdot}00$$

Maximum Bending Moment.

The section of a rolled joist or compound girder is determined by the maximum bending moment. This can be ascertained graphically by drawing the bending moment diagram for each element of the loading and then combining the various ordinates into one diagram as in Plate I. Such a process is necessary in order to proportion the lengths of flange plates to their work, but it is not required when no plates are used. It is also a method which does not lend itself readily to any check other than that of laborious repetition ; and in all cases it is better, especially at such an early stage of the design, to determine the position of the maximum bending moment, and to calculate it, by deducting from the turning moments of EITHER reaction about that point the contrary turning moments of the loads lying between that point and the bearing. Both calculations are speedily made on the slide rule and, if they are correct, the result should give the same figure whichever bearing is worked from.

With symmetrical loading the maximum bending moment is at the centre, and the maximum moment due to any series of concentrated loads acting alone always occurs directly under one of them. It is therefore possible in some cases to locate the maximum moment by inspection with sufficient accuracy; but when the distributed loads or the weight of the girder form a substantial proportion of the whole, a more exact method must be adopted.

For this purpose it is convenient to utilise the principle that *the maximum bending moment coincides with the minimum shear.* A shear diagram can be very rapidly drawn on foolscap by setting up to scale the reactions at each bearing; at one end above, and at the other below, a horizontal line representing the girder. Lines are then drawn to comply with the principle that *the shear at any point on a girder is equal to the reaction at either bearing minus any loads lying between the point and that bearing.*

Thus, as in Plate I., the shear at the bearings being equal to the end reactions, distributed loadings will reduce that shear towards the middle of the girder by inclined gradients and concentrated loads by sudden drops. At the point where the line of shear cuts the girder, the shear is nil, and the bending moment is at a maximum.

Whenever distributed loading or the weight of the girder fixes this position by an inclined gradient it is always better to calculate the position from either bearing and to record the calculations. The gradient which determines the point in this case is that due to the distributed loading of 2·13 tons per foot run. Working from A, and deducting from the reaction there the drop of 3 tons concentrated load, there remains 39·14 − 3 = 36·14 tons, which is dropping rate of 2·13 tons per foot, and will

fore, fall to zero at a distance o

= 17′0″ from A. Working from check, the concentrated load of 5 t the distributed load of 7 tons a deducted from the end reaction o tons, and the remainder is si divided by the ratio of drop, thus :

Distance of point of minimum

$$\text{shear from A} = \frac{(39{\cdot}14 - 3)}{2{\cdot}13}$$

Distance of point of minimum

$$\text{shear from B} = \frac{(43{\cdot}86 - 12)}{2{\cdot}13}$$

Total spa

The bending moment at this calculated in the manner already de and, as a check, should be comput both sides with identical results, th

$$\text{Max. B.M.} = 39{\cdot}14^{T} \times 17' -$$
$$\left\{ (17' \times 2{\cdot}13^{T} \times 8{\cdot}5') + (3^{T} \times \right.$$
$$= 665 - (308 + 36) = 665 - 344$$
$$= 321 \text{ foo}$$
$$= 3852 \text{ in}$$
$$\text{or } 43{\cdot}86 \times 15' - \left\{ (15' \times 2 \right.$$
$$7{\cdot}5') + (5 \times 10') + (7 \times$$
$$= 656{\cdot}5 - (240 + 50 + 45{\cdot}5) = 656{\cdot}$$
$$= 321 \text{ f}$$
$$= 3852 \text{ in}$$

Calculations to be submitted t trict Surveyor should compute the modulus required to resist this moment, thus :—

B.M. = M.R. = S.M. × f = S.M. × per sq. inch.

S.M. = 3852/7·5 = 513.

Merchants' modern lists genera late the section moduli of a large of sections ; and the moduli o joists can, of course, be obtained list of properties of British Stand which, unfortunately, the section is referred to as the "moment o ance," an inaccurate adoption German method of referring to the as the "moment of resistance stress."

Tabulated moduli of compou most useful in determining a sec they are not always available, and case the section adopted must be c in detail if the plates are to be cut off to their requisite length especially necessary when design pound girders to bear in min section modulus refers to one fibres, and is used to determine t on that one layer. In a compour the critical layer (the stress o determines the section modulus r the outer skin of the joist flange, outer skin of the outer plates. The ed section modulus of the joist, is the criterion of its strength when alone, is, therefore, of no im- e, and it is necessary to go back to inciples and to regard, not the sec- dulus of each of the sections com- d, but its moment of inertia ; for tion modulus of the entire section ounded of the sum of the moments tia of each section divided by the e "y" of the extreme skin of the ection from the neutral axis.

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* Cocking. Trans. Conc. Institute, 1913-14.

contribution $\left(\frac{I}{y}\right)$ which the joist ke to this total section modulus has, re, the advantage of the increased of "y," but it also suffers the loss rivet holes. For approximating the the S.M. may, therefore, be taken bular standard value of 167, leaving 167 = 346 to be provided by the The width of the plates would at ual $\frac{\text{span}}{30}$ say 12″, or about 11″ ducting a rivet hole. Approximate a × d = 346 = 11″ × t × 20″. ickness (t) of plates, therefore, $\frac{346}{220}$ say $1\frac{3}{4}''$.

ct Calculation of Section Modulus.

section modulus of any ordinary nd can only be correctly com- by ascertaining the moment of (I) of each section and plate used, iding their sum by the distance (y) layer of fibres furthest from the axis. In the case of sections trical about the neutral axis, this on is quite simple if the designer in mind the principle that *the of inertia of any symmetrical section of the "I" of any rectangle or other ontaining the whole, less the "I" of ent parts.* Thus the "I" of the ost in two 1″ rivet holes in $\frac{1}{2}''$ 2″ apart in clear (Fig. 1) would be of a rectangle 1″ wide and 13″ ss the "I" of a rectangle 1″ wide deep, or $\frac{1'' \times 13^3}{12} \times \frac{1'' \times 12^3}{12}$

$\frac{- 12^3}{2} = \frac{2197 - 1728}{12} = 469/12$

.

noment of inertia of one inch in f pairs of plates of various thick- at various distances apart can e calculated thus and either tabu- plotted to a large diagram for use drawing office. From this the t of inertia of any given width of less rivet holes) can be at once ned.

et moment of inertia of standard fter deducting one rivet hole in nge can also be tabulated.

rivets used are generally $\frac{7}{8}''$ for nds 18″ deep and over, and $\frac{3}{4}''$ for sizes. The deduction for rivet hould be $\frac{1}{16}''$ larger than the rivet. e absence of tabulated data, the would be calculated as follows : wo $\frac{1}{2}''$ and two $\frac{3}{8}''$ plates, all of th of $11\frac{1}{16}''$ after deducting one le.

ment of Inertia of each Plate.

plates 20″ apart =

$$1{\cdot}0625 \times \frac{(21^3 - 20^3)}{12}$$
$$= (9250 - 8000) \times {\cdot}92 = 1150$$

Two $\frac{1}{2}''$ plates 21″ apart =

$$(22^3 - 21^3) \times {\cdot}92$$
$$= (10650 - 9300) \times {\cdot}92 = 1240$$

Two $\frac{3}{8}''$ plates 22″ apart =

$$(22{\cdot}75^3 - 22^3) \times {\cdot}92$$
$$= 11750 - 10600 \times {\cdot}92 = 1060$$

Two $\frac{3}{8}''$ plates $22\frac{3}{4}''$ apart =

$$(13000 - 11750) \times {\cdot}92 = 1145$$

Net "I" of 20 in. × 7½ in. R.S.J.

Mean thickness of flange = 1·010
"I" of metal lost in rivet holes =

$$\frac{{\cdot}9375 \times (20^3 - 17{\cdot}98^3)}{12} = 166{\cdot}2$$

$$\text{Net "I"} = 1671{\cdot}2 - 166{\cdot}2 = \underline{1505}$$
$$6100$$

$$\text{S.M.} = \frac{6100}{11{\cdot}75} = 520$$
$$\text{S.M. required} = 513$$

Bending Moment Diagram for Cutting off Plates.

The length of each plate is determined by setting up a diagram of total bending moments and superimposing upon it horizontal lines whose vertical distance apart is proportional to the contribution made by each plate to the total moment of resistance which resists that bending moment. Such part of the contribution of each plate which falls outside the bending moment diagram represents unnecessary material, which can be saved.

The diagram must obviously have a horizontal base and is usually compounded by describing below a line representing the span the diagram of the bending moments caused by each load, and setting up above the line the total of the ordinates of all the diagrams below.

The B.M. diagram can be set up to any convenient scale, and the contributions made by each element of the section can be superimposed by drawing a horizontal line through an ordinate representing the section modulus provided × 7½ tons per square inch (which in this case is practically identical with the maximum bending moment) and laying off to any suitable scale an inclined line representing the total moment of inertia divided into its constituent parts as calculated and as shown on Plate I. Horizontal lines through these divisions will then represent the working value of each element of the section.

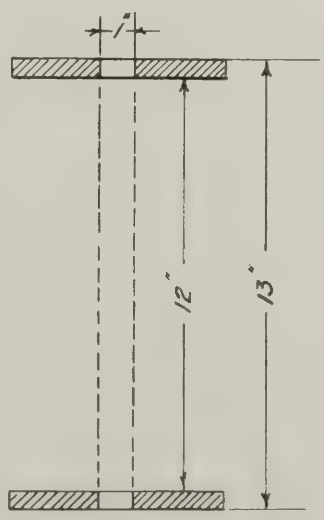


Fig. 1.

Actual Weight of Girder over Span.

Joist 32′ × 89 lb. = 2850 lb.
Plates 72′ × 15.3 lb. = 1100 lb.
109′ × 20.4 lb. = 2220 lb.
Rivetheads
29 × 4 × 4 × .2236 = 104 lb.
6274 lb.
= 2.8 tons

The estimated load of 4 tons is therefore ample.

Alternative Section with Two Joists.

Before proceeding further with the design it should be ascertained whether a girder with two joists and wider plates would be more economical.

The weight of a 20″ × 7½″ R.S.J. = 89 lb. per ft. run
The weight of two 12″ × 1¾″ plates = 144 lb. " "
Rivetheads 3 " "
147 " "
Weight per ft. run *in centre of span* 236 lb. " "

By similar methods, or by consulting a well-compiled section list of compounds, it can be ascertained that a section of two 20″ × 7½″ joists and 16″ × ⅞″ plates with a S.M. of 524·6, or two 18″ × 7″ joists and 16″ × 1¼″ plates with a S.M. of 519·5, would be suitable. The weight of the first would, however, be 277 lb. and of the second 290 lb. per foot run in the centre as against 236 lb. Being composed more largely of joist section, the total weight of each would show a still higher ratio; but if the market price of joists were low and that of plates relatively high, it might pay in the end to incur a greater tonnage.

The shear stresses at the end would also be distributed over two webs instead of one; but as the reactions, although heavy, are not unusual, the lighter single joist section is adopted.

Deflection.

As the span does not exceed 24 times the depth of 1′ 11½″, the limiting deflection of span /400 is not compulsory under the Act. The deflection can be calculated from the formula $\Delta = pS^2 \times \frac{{\cdot}083}{d}$ in which "p" has a value of 5/24 for girders of uniform flanges, and ¼ for when the flange stress is uniform.* A compound girder being approximately midway between these conditions, "p" may be taken at $\frac{5{\cdot}5}{24}$ and the deflection would be $\Delta = 32 \times 32 \times \frac{{\cdot}083}{23{\cdot}5} \times \frac{5{\cdot}5}{24} = {\cdot}83''$ The ratio of deflection to span is ·83 to 384, or 1 to 460.

Tendency of Unstiffened Webs to Buckle.

When the webs of girders are provided with vertical stiffeners which are adequate to take, as posts, the vertical shear where they occur, then the web between them may be regarded as an inclined tension member. As the web can only buckle in compression when, and in so far as such tension member fails, the tendency to buckle may be neglected.

The webs of rolled joists and compound girders normally possess no such stiffeners, and it is necessary to provide them in all cases where the web as a column will not take the shear.

---

* "Principles of Structural Mechanics" (Batsford), p. 199.

The subject of unstiffened webs is somewhat complicated, and cannot be regarded as fully investigated. For practical design the following assumptions are sometimes made.

The vertical unsupported length of web is taken as the net width between the mean thickness of the flanges, and the ends are considered to be fixed. The intensity of stress upon any imaginary post would depend upon the length of web presumed to act as a post. The tendency of compression is to buckle the web at an angle of 45°, and Rankine has shown that the intensity of diagonal compression and tension on the web is equal to the intensity of the shear stresses which produce them.

The length of the diagonal strip of web acting as a column will be the depth "d" multiplied by $\sqrt{2}$. Therefore, when as a column of that length it is unable to receive a stress per square inch equal to the intensity of vertical shear, stiffeners must be introduced.

The radius of gyration of such a column of thickness "t" equals $\frac{t}{\sqrt{12}} = t/3{\cdot}48$, and the L.C.C. formula for safe stress on columns with fixed ends, $6{\cdot}5 - {\cdot}025\ l/rg$, might be used in the form of,

$$6{\cdot}5 - ({\cdot}025 \times 1{\cdot}414d \times 3{\cdot}48/t)$$

$$= 6{\cdot}5 - {\cdot}025 \times \frac{5d}{t}$$

$$= 6{\cdot}5 - \frac{{\cdot}125d}{t}$$

But the L.C.C. formula, like all straight-line formulæ, is bound to be unduly severe on short columns in order to be safe with regard to long ones, and as the webs of rolled joists form comparatively short columns, it may reasonably be modified to the form $5{\cdot}5 - {\cdot}04\frac{d}{t}$ the equivalent of a general straight-line formula of $5{\cdot}5 - {\cdot}0114\ \frac{l}{rg}$

The web depth of a 20″ × 7½″ standard joist, which has a flange thickness of 1·01 = 17·98. The web thickness is ·6 and $\frac{d}{t} = 30$. The shear intensity which will produce an excessive tendency to web crumpling will be $5{\cdot}5 - \frac{{\cdot}04d}{t} = 5{\cdot}5 - 1{\cdot}2 = 4{\cdot}3$ tons per square inch, and the greatest reaction or vertical shear to which such a web should be subjected, whether in a single joist or a compound, would be 17·98 × ·6 × 4·3 = 46·3 tons.

The reaction at B is 43·86.

Stiffeners, although theoretically unnecessary, may be placed at B and at a distance from B equal to the depth of unsupported web, i.e., 18″. Two angles 3½″ × 3½″ × ⅜″ would have an area of 2 × 2·485 = 4·97″, which would be ample to take as a post any excess of vertical shear which the web cannot take. They should be planed top and bottom and fitted accurately between the flanges.

The reaction at A is under 40 tons, and this end is also considerably stiffened by the connecting cleats.

Pitch of Riveting.

Each plate may be regarded as a patch stitched on to the joist to strengthen the weaker parts of the span. Sufficient stitches or rivets to develop the full strength of the plate must, therefore, be put in between the end of the plate and the point where its full strength is required.

From Plate I. it will be seen that the full strength of a ⅜″ plate must be developed in 2′ 6″ and that of a ½″ plate in 2′ 6″ also.

The net strength of a ⅜″ plate = 11·0625 × ·375 × 7·5 = 31 tons.

The net strength of ½″ plate = 11·0625 × ·5 × 7·5 = 41·5.

The strength of a ⅞″ rivet in single shear is ·875 × ·7854 × 5·5 = 3·307.

Number of rivets required in a 2′ 6″ length of ½″ plate = 41·5/3·307 = 12·5.

Number of rivets required in 12″ length of ½″ plate $= 12{\cdot}5 \times \frac{12}{30} = 5$.

Rivets at 3″ zigzag pitch, i.e., 6″ apart in line will suffice, and this will also meet the requisition of the Act, which fixes the maximum distance apart of rivets at 16 times the plate thickness, for 16 × ⅜″ = 6″.

Bearing B.

The safe load on hard brickwork in cement being 8 tons per foot super, the area of bearing required at B = 43·82/8 = 5·48 feet super.

Size of pier, say 2′3″ × 2′6″.

The load may be distributed over the pier either by a stone template or by metal bearing plates.

Stone Template.

The safe fibre stress on stone not being a constant quality, the depth of such a template would be determined by experience, say 12″. The safe load on York stone may be taken at 30 tons per foot super. and the requisite area of bearing plate on the stone would be 43·86/30 = 1·46, say 12″ × 1′ 6″. The bearing plate would project beyond the joist by $\frac{12'' - 7\frac{1}{2}''}{2} = 2\frac{1}{4}''$.

Bearing Plates.

The calculation of the necessary thickness of bearing plates is made on the assumption that the material L, Fig. 2, below the plate, to which it delivers its load, is somewhat flexible, and also the material B above it from which it receives its load. These assumptions, which obviously err on the side of safety, and will be discussed more fully in connection with grillages, permit the maximum bending moment to occur in the centre of the plate instead of at the edge of B, as would be the case if the overhan treated as a cantilever. The load a upward reaction being assumed equally distributed over B and central B.M. will be

$$\left(\frac{W}{2} \times \frac{L}{4}\right) - \left(\frac{W}{2} \times \frac{B}{4}\right) =$$

$$\frac{W}{8}\left(L - B\right) =$$

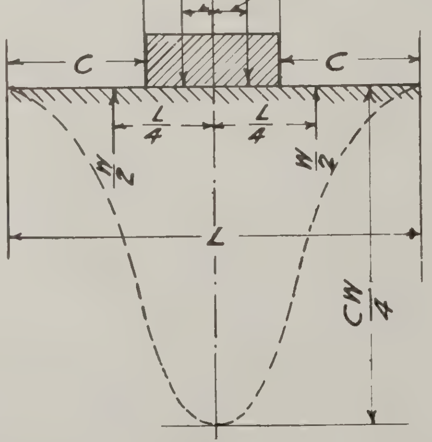


Fig. 2.

Considering only the transvers 1″ wide of a bearing plate of dept the bending moment of $\frac{2CW}{8}$ should the moment of resistance of a re 1″ wide and "t" inches deep × " per square inch, or

$$\frac{2CW}{8} = \frac{b\ t^2\ f}{6} \text{ or } t = \sqrt{\frac{1{\cdot}5}{f}}$$

If "f" be taken at 7·5 tons per sq $t = \sqrt{{\cdot}215\ CW}$.

On account of the liberality assumptions made, "f" may be ta 9 tons per sq. inch, or $t = \sqrt{\frac{C}{6}}$

In this case, W = 43·86/18″ = 2·4

$C = 2{\cdot}25''\ t = \sqrt{\frac{2{\cdot}44 \times 2{\cdot}25}{6}} =$

Metal Bearing Plates.

The use of thick steel bearing instead of stone is not uncommon necessary thickness of such a plate overhang of 30″ − 7½″/2 = 11¼″ w

$$t = \sqrt{\frac{2{\cdot}44 \times 11{\cdot}5}{6}} = 2{\cdot}18''$$

The maximum overhang of a 1⅛″ when W = 2·44 tons can be obtai follows: $t^2 = \frac{1{\cdot}5\ CW}{f}\ C = \frac{t^2 \times f}{1{\cdot}5 \times W}$

$$\frac{1{\cdot}125^2 \times 6}{2{\cdot}44} = 3{\cdot}14''$$

The base could therefore be buil one 1⅛″ plate 2′ 6″ × 2′ 3″ and plate 2′ 0″ × 2′ 0″.

Joint to Stanchion.

The requirements of the Ac regard to rivets and bolts are as fo

Rivets to be used when reas practicable.

Bolts to extend through full thi of nut and to be locked.

Edge of rivet hole to edge o equals diameter of rivet.

Least pitch = diameter × 3.

Greatest pitch measured in s line = plate thickness × 16.

The centre of a ⅞″ rivet hole m be nearer than 1 5/16″ to the edge plate, and as the hole is 1/16″ larg the rivet, this distance should be at least 1 11/32″. The least pitch is = 2⅝″.

The number of ⅞″ rivets = 39·17 by the strength of a ⅞″ rivet in shear, or $\frac{39{\cdot}14}{3{\cdot}307} = 12$; but as the are long, two more are added.

The stanchion being continuou two rows of rivets can be put thro flanges, and cleats riveted to the the girder could, with the 16″ a between the flanges, just take a row of 6 bolts, but the seatin shown, which can be soundly rive at the yard, is better than a bolt nection on the site. The top clea considered to take any vertical lo is introduced to form a stiff conne lieu of wind bracing.

(*To be continued.*)

HE WARDS AND OPERATING THEATRES OF A MODERN HOSPITAL.

paper on the new King's College Iospital, at Denmark Hill, London, which was read before the Royal te of British Architects on March 29 W. A. Pite, F.R.I.B.A., the archi- alt at such length with the planning uipment of the buildings as to pre- ny full report of it in these pages, a general summary would not allow tailed particulars to be included, we thought it best to restrict our ces to two portions of the hospital are of particular interest, namely, rds and the operating theatres.

various blocks are ranged on either a main hospital corridor 900 ft. in and 10 ft. in width, the administra- lock, casualty and out-patients nents, and medical school being on rth side, and the ward pavilions at regular intervals on the south The full scheme provides two three- ward blocks on either side of a chapel, flanked by three two-storey ns east and west, which, together special ward block at the western the main corridor, brings up the total pavilions. At present the three blocks are not built, they and an nal storey on the special block being plated for future extension. The between the wards are sufficient to ample lighting, and in the larger *.e.*, that between the three-storey e adjoining two-storey block—a court is arranged.

roofs of the wards are flat, covered phalt. The sanitary towers are with Italian tiles, as are also the uses on each of the three-storey locks. The elevations are treated brickwork, with red dressings, and of Crowborough stocks; artificial used for the copings, plinth mould,

g to the conformity of the site, the -floor wards are level with the first the administration block, where the administration is placed. The hus formed under the administrative of the ward blocks is utilised for store and other rooms, whilst under rds themselves it provides a blow and space for pipe ducts, etc.

ain hospital corridor connects all the locks on each floor, the principal e with the bed lift serving all these There are also subsidiary stair- nd coal and diet lifts, directly con- with the stores and kitchen. A e, with bed lift, connects each floor corridor on the north side, and is n conjunction with the operation s.

The plans of all the ward units, with the exception of those in the special block, are essentially the same. A wide-arched opening leads directly from the main corridor into the ward corridor, 8 ft. in width. Three pairs of swing doors are placed in this corridor. The first two pairs are on either side of the cut-off lobby. The only room accessible before reaching this is the ward sisters' sitting-room, which is thus in close proximity to the ward and at the same time separated therefrom. Four rooms open into the cut-off lobby; they are the patients' dayroom, nurses' lavatory, a sinkroom, and the wardmaids' closet. Beyond this lobby are, on the left, the patients' clothes store, the duty room with a small larder, and the clinical room, which also communicates directly with the ward. On the right are a linen room and two single-bed wards. The third pair of swing doors in the corridor lead directly into the ward. These doors are glazed with an ingenious combination of obscured and clear plate glass, the advantage of which is that supervision of the ward from the corridor and *vice versa* is possible without opening these doors.

The wards themselves are 108 ft. 1½ in. long by 26 ft. 3 in. wide and 13 ft. high. They each contain twenty-four beds, spaced about 8 ft. 6 in. centre to centre. Each bed has a window on either side.

The Ward Windows.

The windows are of the improved Austral pattern, and are flush with the walls. These windows merit a detailed description. They are entirely without boxing, sash lines and weights, being arranged on a system of one sash balancing the other on a pivot turning about a fixed point. A check is provided whereby the frames open to such a position that ample central ventilation is provided with a minimum of draught. By moving this check the sashes, continuing the movement in their grooves, form large hopper lights which can be considered equal to opening the whole window area. By releasing two catches each sash can be swung in for cleaning. Above these are hopper ventilators, with glazed cheeks, reaching to the ceiling. The glass of these hoppers is obscured in order to diffuse direct sunlight, and thereby enabling the blind to be fixed at the transom level.

The floors of the wards are of reinforced concrete, the space between the beams being occupied by hollow terra-cotta blocks. These fulfil the double purpose of preventing the conduction of sound, and allow the ward ceilings to be plastered flush. The floors of the wards are of stout linoleum laid on a Durato sub-floor, with Durato border and coved skirting. All internal angles are coved to a radius of 2½ in.

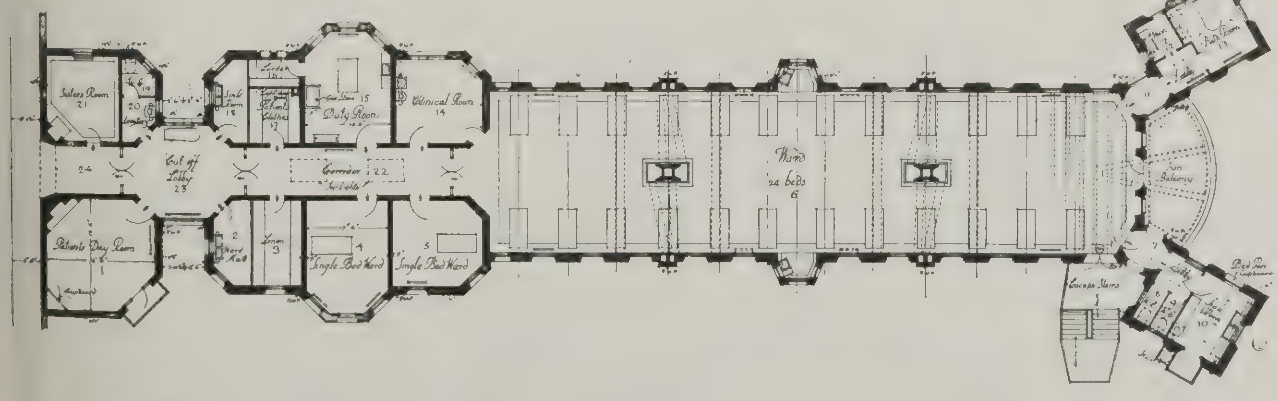
The warming is by radiant heat supplemented by the low-pressure steam radiators of the hospital pattern, with regulating F.A.P's. The pipes to these are carried up outside the wards, concealed within the splayed window jambs, which are hollow, with removable concrete blocks with lifting rings in the required positions. Two dual stoves, with descending flues running in the thickness of the floors, and fed by fresh air, are placed in each ward. Opportunity has been taken in the children's ward to insert in the tiling of these stoves pictorial representations of such youthful heroes as Jack the Giant Killer, Tom the Piper's Son, and many another.

The walls and ceilings are finished with flat enamel paint, that on the walls being of a restful green tint. The doors are all flush hardwood, with double glazed flush bull's-eye lights where necessary. The small bays on each side of the ward are quite a novel feature. They are of extreme utility, containing as they do basins for the use of the staff and shelves for sterilisers, lotion bowls, etc.

At the end of the ward are large glass doors leading on to the sun balconies, and on either side are the entrances to the sanitary towers, through low, well-ventilated, cut-off lobbies. One of the sanitary towers contains two w.c.'s and a sink room. The closet doors and partitions are 9 in. clear of the terrazzo floor. The closets installed are of a corbel pattern, with waste-preventing cistern immediately over the seat.

The sink room contains a bed-pan sink of an excellent type, and warming racks of special design are provided for the bed pans. An ingenious cupboard for those in which specimens are retained is fixed under a window. It has external ventilation, and is provided with glass shelves and closefitting metal doors. For soiled linen bins small outside balconies are provided, and the bins are so constructed that the crutches of a simple trolley engage the pivots of the bin, by which means the bin, tightly sealed, can be wheeled away. Other fittings in this sanitary tower are a mackintosh sink with scrubbing board and a hot-water bottle heater on the calorifier system.

The other sanitary tower contains bath and lavatory accommodation. The floor again is of terrazzo, with channels into which the baths and basins discharge. A small wash-up room with sink is also provided. The walls of these sanitary annexes are of glazed brick. The warming is by means of radiators.



KING'S COLLEGE HOSPITAL, DENMARK HILL, LONDON, S.E.: TYPICAL WARD PLAN.

WILLIAM A. PITE, F.R.I.B.A., ARCHITECT.

The single-bed wards are finished in a similar manner to the main wards, having, however, Durato floors. These are served by the special sink room, entered from main ward cut-off lobby, placed at the north end. For the convenience of these patients, and those in the ward who are unable to reach the bathroom, a portable bath is provided. This is kept in the cut-off lobby, where there is a gulley benched up to take the discharge, a valve with hot and cold mixing box supplying the bath.

Clinical Room and Ward Kitchen.

The clinical room is fitted with a large examination table constructed of teak with an inlaid glass top. The lotion jars are supported on a slate shelf, a sink with porcelain slab and glass shelves being also provided, and a poison cupboard, specially designed and fitted, being provided with electric light.

The duty room or ward kitchen has an electric tea-making and egg-boiling apparatus of special design, which can be filled from a heated reservoir over, the electric current being required only to complete the boiling process; a hot serving closet, heated by hot water, being provided below; a sink with drainer, and plate rack over, being also provided. A cupboard with separate lockers is provided for patients' food, fitted with special removable tin-lined divisions.

The linen cupboards in the linen room are provided with sliding doors, ample provision being also made for their ventilation. These cupboards are well warmed by pipe coils off the hot-water system. Where possible this subsidiary system of heating has been adopted in order to enable the steam heating to be closed down in summer.

Special Ward Block.

The special ward block is in many respects similar to the other wards in its internal arrangement. The ground floor contains two wards of fourteen beds each, assigned to male and female eye patients respectively. The first floor contains similar wards for ear, throat, and skin patients, male and female. In addition to the usual accessory rooms there is on each floor a special operation theatre, with anæsthetising room and wash-up, and an examination room in connection with the special wards. A more detailed description of these is given later, in the description of the operating theatres. In this block there is only one sanitary tower in connection with each ward, the bathrooms being incorporated in the central portions. Sun balconies are placed at the southern end and along the west side of each ward.

Operating Theatre Blocks.

The operating theatre blocks, two in number, are placed on the north side of the main corridor, equally convenient in access from the wards and the administration. Between the blocks is a staircase and bed lift, intended solely for use in connection with this department. The theatre blocks themselves are separated from the main corridor, the larger one being reached by two bridges and the smaller by a single bridge. They each contain two operating floors and a basement floor. The larger or eastern one contains two general theatres, and the smaller one a gynæcological theatre on the first floor and a general theatre on the ground floor (ward floor levels).

In the large theatre block there is a surgeon's room, with a small bathroom opening off it, fitted with a shower bath and lavatory basin. The operating theatre itself is reached through an anæsthetising room, and the patient is removed through a recovery room. It is interesting to note, however, that in practice the patient is generally conveyed straight back to the ward to recover from the operation in bed, so avoiding a second moving. The wash and sterilising room is reached through a dressers' room, and is only separated from the theatre by a wide opening, no doors being fitted. The spectators' gallery is separated from the floor of the theatre by a low barrier, and is reached from a separate entrance.

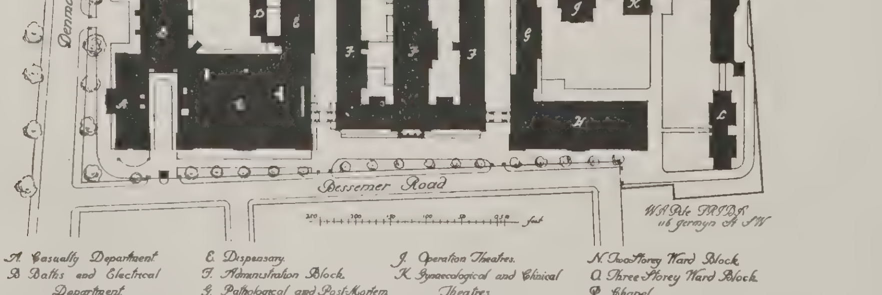
It is, perhaps, in an operating theatre that the extreme requirements of hospital finishing receive the fullest attention. In the operating room itself the finish allows of absolute cleanliness. The floor and gallery seating are of terrazzo, and the walls and ceiling finished in enamel paint. The windows are flush, and the doors are of flush hardwood with metal frames. No pipes or radiators are visible. The heating of the block is twofold. The wash room, operating room, and gallery have inlets from a heater box from the basement, and the air before passing through
filtered through screens. Extract
ceiling connect up with a duct, a
over the bridge pulls the air fr
The duct is also connected with t
rooms in the block, but these ro
warmed by radiators. In the thr
enumerated rooms, most intimat
nected with the operation, which
may be more properly considere
room, a system of panel heatin
stalled. A series of pipes, throug
flows a circulation of hot water,
to the walls and ceilings and emb
Durato, which, owing to its natu
ticity, is perhaps less liable than a
material to crack. Calorifiers in t
ment convert this hot water f
steam main, and a series of val
tained in a glazed cupboard provid
of regulating the heating. All
and salient angles are, of cou
rounded, and the whole theatre
hosed down if required.

The sanitary fittings—sinks an
—in the wash room are of a spec
which have been evolved as be
sidered more suitable for theatre
the special fittings used elsewhere
out the hospital. To these fittin
operated sprays with mixing boxe
stalled. The overflows to the s
basins consist of an open vertical
formed in the pottery outside. T
outlet has no metal work, a rub
fitting directly into the pottery,
pensing with the brass grid and ur
and their attendant collection of d
the overflow and the waste
directly into the hopper head of a
enamelled waste not connected to
tery in any way but hinged to o
brackets supporting the fitting so
that it can be tilted or swung to
for inspection or cleaning. Glas
and porcelain slabs in the operati
are fixed with the utmost regard
liness, and a series of sterilise
metal-framed instrument cupb
cessed in the wall, complete t
equipment of the room. The
lighting is supplied from wall
and a large adjustable lamp can
in any position over the patient.

The large metal windows, wit
sides and top, are flushed inside,
an ample and steady illuminati
lower portion of the glass is
The framing has been so arran
double glazing can be installe
there be any trouble from con
arising from the radiation attend
such a large sheet of glass. The
ment of the heating panels seem
obviated the necessity for this.

The ophthalmic theatre has a
under the window so that the he
patient can be brought immediat
the light. The throat and ear th
accessory rooms above are gla
deep amber glass, a requireme
specialist in charge of this de
Both these theatres are provi
flexible wood lath outside blind
are light tight. These are opera
the inside.

The surgeons are provided wit
baths in connection with thei
these being found to be of gre
after operating in such a high tem
and for this purpose being prefera
ordinary bath. The spectators'
the operating room, entirely fi
terrazzo, and the "Beck" beam
the gynæcological theatre—whe
source of light is outside the thea
being projected from an adjoin
through a glass panel, and there
ing risk of dust falling on the
table—are also items of interest.



KING'S COLLEGE HOSPITAL: BLOCK PLAN.

COMPETITIONS.

Housing, Whitehaven.

bers of the Society of Architects are that some of the conditions of the competition are considered unsatis-. The Society is in communication e promoters, and is endeavouring to conditions amended.

ce Buildings and Fire Station, St. Helens.

the designs submitted in connec-th the above competition will be ex- in the Assembly Room at the Town St. Helens, for inspection by the itors and by the representatives of hnical Press, on the 29th and 30th nd May 1, from nine a.m. to 5.30 A public exhibition will follow.

tate Development, Doncaster.

e competitions in connection with r House Estate housing scheme of ncaster Corporation, the assessor, Patrick Abercrombie, M.A., of ol, has made the following awards: st site plan (£50), Messrs. Ireland nscomb, West Ealing. Housing £30), Mr. G. A. Boswell, Glasgow; G. S. Stout, Whitehaven.

L.C.C. School, Greenwich.

st week's meeting of the London Council it was decided that Wright and Chapman, of New-n-Tyne, whose design had been l in open competition, should be ed architects for the construction elementary school in Billingsgate Greenwich, and Messrs. Savage we, of Newcastle-on-Tyne, were ed quantity surveyors for the

OF COMPETITIONS OPEN.

21.—HOUSING, WHITEHAVEN.— tion invite designs for laying-out d erection of houses. Author of placed first to be employed as t, or otherwise to receive eas premium; second premium, 20 ; third, 10 guineas. Conditions , returnable), The Borough Sur-Town Hall, Whitehaven. [See note issue of March 31, p. 152, and

30. — GRAMMAR SCHOOL, TER. — The Corporation invite for the new Wyggeston Grammar for Boys to be erected on a site egent Road. Competition limited hitects practising in Leicester. ms £100, £70, and £50. Assessor, orge H. Widdows, F.R.I.B.A.

31.—LAYING-OUT GROUNDS OF SITY OF WESTERN AUSTRALIA.— are invited for the laying-out of unds at Crawley, Perth, Western ia. Premiums, first, 100 guineas; 25 guineas. Drawings must he Registrar, University of Perth, r than May 31. Documents relat-he competition may be seen at the of the Agent-General for Western ia, Savoy House, Strand, W.C. ticulars, see our issue of March 17,

DATE.—MUNICIPAL BUILDINGS, Y.—Designs are invited by Stepney Council for new municpal build-Particulars from Mr. G. W. Town Clerk, 15, Great Alie Street, apel, E.

ATE.—SMALL HOSPITAL, WHITE- —Designs are invited by Galemire Joint Hospital Committee for a small hospital. Apply Mr. E. B. Croasdell, Union Hall, Whitehaven.

NO DATE.—COTTAGES, CHESHIRE.—Designs for cottages on the Bromborough Estate, Cheshire, are invited by Messrs. Lever Brothers. Particulars of the nine premiums offered were given in our issue of March 17, p. xiv.

TRADE AND CRAFT.

Steel Construction Tables and Formulæ.

Messrs. Drew-Bear, Perks and Co., Ltd., 110, Cannon Street, E.C., and Battersea Steel Works, Wellington Road, S.W., have just issued a new up-to-date edition of their exceedingly useful booklet on "Steel Construction," in which the tables and formulæ for the use of architects and engineers have been not only revised with great care, but have been considerably amplified. Full details are given of standard and stock sections of all kinds of constructive steel-joists, chequer-plates, angles, channels, bars and plates, tees, etc., and two pages of diagrams showing bending moment, shearing stress, and general formulæ, are followed by a dozen pages giving full details of steel beams, compound girders, and plate and angle girders, with calculations for various safe-loads or spans. Stanchions are treated with similar fulness of detail, the calculations being, as in the preceding cases, in accordance with London County Council formulæ. Calculations for grillage foundations for stanchions are accompanied by a diagram, and standard cleats for beams are shown diagrammatically, with a clear indication of the positions and sizes of the rivets. There are also tables of sizes and weights of black bolts and nuts, and of steel snap-headed rivets, with their shearing and bearing values. Some five-and-thirty photographic views show interesting examples of the structural application of the firm's steelwork in buildings of very various descriptions—theatres and music-halls (in which class of work this firm are acknowledged experts), factories, public halls, winter gardens, race stands, residential flats, etc., besides various types of bridges, and a sample of the escalators recently supplied to the Underground railways. Architects, engineers, and contractors, we notice, are invited "to inspect their work in progress" at the firm's machine shops, which have been recently extended, and are equipped with the most modern plant. For all who are interested in steel construction this excellent little manual is a treasury of indispensable information.

Electrically Operated Carriage Drive Gates.

The beauty of finely wrought gates to the winding drives of country houses is rather apt to be lost on visitors who, arriving in motors or carriages, are apt to be impatient of the delay involved in opening or closing them, more especially since the lodge-keeper is a figure who is dying out in these days when the tendency is for men to drift to productive labour.

That the difficulty can be satisfactorily surmounted is evidenced at a country house in the North of England where a fine pair of gates with imposing pillar supports, gracing the approach to the hall, is electrically operated by gear constructed by the Witton-Kramer Electric Tool and Hoist Co., Witton, Birmingham (for whom the General Electric Co., Ltd., 67, Queen Victoria Street, London, E.C., are the sole selling agents).

The operating gear consists of a ½ h.p. "Witton" motor geared through a clutch to a mechanism for opening and closing the gates. The electric motor and mechanism are housed in a small tunnel underneath the gates—a small manhole situated to one side giving access. Power is supplied from the house installation, and the controlling switch is located in the garage. This controlling switch is of the reversing type, so that putting the switch in one position closes the gates and putting it in another position opens them. In completing the circuit, the motor is started up, and a solonoid circuit energised, thereby connecting the motor to the gate-opening mechanism through the clutch. The presence of this clutch, which is open when the motor is not at work, enables the gates to be opened or closed by hand when desired. Before leaving the garage the chauffeur opens the gates, and, after driving through, signals by means of the horn to anyone who happens to be in the garage should he desire the gates to be closed immediately. On the other hand, when the gates are found closed on the return journey, the sound of the horn gives the signal for the switch to be put to the opening position.

It cannot be said that a gate-opening gear of this description would raise to a high pitch the enthusiasm of a supply authority to whose mains it might be connected, inasmuch as it is estimated that the gate can be opened over 500 times at a cost of 1d. With what interest the scheme is viewed in the surrounding districts may be gathered from the fact that within a few weeks of having been installed picture post-cards of the gate were commanding a ready sale. Incidentally, of course, a scheme of this description is susceptible of any number of variations. It could be arranged so that by means of a time switch the gates were closed some few minutes after the departure of the car from the garage. Moreover, they could be controlled by means of a push-button in the hall of the house, or by a mechanism completing the electrical circuit due to the weight of the car pressing on it as the car reached the gates.

The gates were constructed by Messrs. Lockerbie and Wilkinson, Tipton, Staffs, and the operating mechanism by the Witton-Kramer Electric Tool and Hoist Co., Witton, Birmingham.

Jubilee of Mr. Henry C. Walker, of Waygood and Otis, Ltd.

On Tuesday, March 30, a large number of the principals and employees of Messrs. Waygood-Otis, Ltd., assembled in the Crossway Hall, New Kent Road, London, S.E., to do honour to Mr. Henry C. Walker, the chairman and managing director, the immediate occasion being his completion of fifty years' association with the firm. Representatives had come specially from Glasgow, Leeds, Birmingham, Manchester, and Cardiff, for, as Mr. David W. R. Green, joint-managing director, remarked, on taking the chair, everyone connected with the firm desired to do homage to a man who had worked for it unceasingly for fifty years.

Mr. E. Parry Okeden, a former director, in making the presentation of a handsome hall clock, on which was inscribed: "Presented to Henry C. Walker, Esq., by the staff and workers of Waygood-Otis, Ltd., on the fiftieth anniversary of his association with the business, 1865-1915," said: "I have been asked to present this little token of the enormous esteem and regard in which you are held by the whole of the firm." The gift was accompanied by an album signed by more than 600 subscribers.

About 250 employees of Messrs. Waygood-Otis are with the colours, but space is left in the album for further signatures at the close of the war. Among those who are on service is Colour-Sergeant H. C. Bradbrook, the secretary of the company, who took part in the famous charge of the London Scottish.

Mr. Henry C. Walker, in acknowledging the presentation, recalled that when he entered the service of the firm as a boy it was making water-mills, sugar-mills, coffee and rice-mills, but no lifts. Mr. Walker took the first order for a lift, and from that tentative beginning has grown the present enormous output. After referring to the happy union of Waygoods with Messrs. Otis, Mr. Walker said that the spirit which had actuated the gifts "was going to help more and more to cement the unity which existed between employer and employed." He trusted that he might always feel he had a chair and desk at Falmouth Road.

The Chairman (Mr. David W. R. Green), in thanking the committee for the work in connection with the presentation, referred to Mr. Walker's remarks concerning the history of Messrs. Waygood. "We have a company that has been a success, and we have got to make it a success for the future," he said, "I believe confidently in the future. My feeling is that with the combined strength of Messrs. Waygood and Otis we have an unassailable position, and we can make it more prosperous."

During the evening another presentation was made by Mr. H. C. Walker to Mr. Harry Bishop, who had also completed fifty years in the service of the business. The firm's tangible recognition consisted of a silver cup containing a ten-pound note.

It was stated that Mr. Bishop was the fourth employee who had completed half a century with the firm.

The meeting ended with three rousing cheers for Mr. Walker with musical honours.

ARCHITECTS ON WAR SERVICE.

As we anticipated, the lists of architects on war service we gave in our issues of March 17 and 24 have excited much interest, and we have received many congratulations and the following few corrections:

Edmunds, H. Carey, Royal Engineers. This gentleman relinquished a position as architect in Shantung, China, and travelled home in December last through Russia, Finland, Sweden, and Norway, to enlist in the Royal Engineers.

Foster, Frank, A.R.I.B.A., is attached to the Royal Engineers, planning and superintending camps, etc., in the Eastern Command, "somewhere in Kent," let us say.

Kaye, Stewart, "9th Royal Scots (Pte.)," is erroneous in two particulars. Lieut. Kaye informs us that he mobilised as second lieutenant in the 16th (Service) Battalion the Royal Scots, and has been recently transferred as lieutenant to the Corps of Royal Engineers as division officer, Scottish Command. The error did not originate with us, but we gladly make the correction.

"Reavell, G., jun., Major, 7th Battalion Northumberland Fusiliers," is now out of date with respect to the rank. For "Major," we must now read "Lieut.-Colonel."

We are informed that new field and signal companies (212 and 240 men respectively) are again being raised by the 1st London Divisional Engineers (T.F.), as three of their units have already gone abroad on active service.

Smart intelligent men worthy of the traditions of Royal Engineers for pluck and enterprise are again wanted for the field companies, men connected with the building and constructional iron trades, all-round electricians, etc., and some drivers are needed.

For the signal companies young men of good education, especially telegraphists, electricians, instrument makers, and telephone operators, all of whom are taught to ride.

In both companies harnessmakers, wheelwrights, shoeing smiths, or men capable of being taught these trades, are required.

The work, which includes pontooning, explosives, and cable laying, is very interesting, and the pay is considerably higher than in most other arms of the service.

Apply for further particulars, personally if possible, to the Headquarters, 10, Victoria Park Square, Bethnal Green, N.E., or to the Branch Recruiting Office, Labour Exchange, Edgware Road, W.

THE RE-MAKING OF BELGIUM.

Lord Bryce opened an exhibition at the University of London School of Architecture, University College, which has been organised by the Belgium Town Planning Committee. It includes plans, views, and photographs of Belgium, both as it was before the war and as it is now, as well as an historical series illustrating the development of the cities of the Netherlands. Examples of town planning likely to be useful for study purposes are also included. There is no pretension to instruct Belgians how to rebuild their towns and villages. The aim of the exhibition is merely to facilitate preparatory work by the Belgians themselves.

Professor Gregory Foster occupied the chair, and among those present were M. Paul Hymans, the Belgian Minister, M. La Fontaine, of the Belgian Senate, the Belgian Consul-General, and Sir Cecil Hertslet, the British Consul-General for Belgium.

Lord Bryce said the exhibition was not intended to imply any desire to do anything that could seem to relieve the invaders of Belgium from their obligation to make good all the devastation they had caused. If there was anything upon which public opinion in this country and, he thought, in the neutral world was absolutely agreed, it was that those who had brought the evil in Belgium, destroyed its cities, and inflicted poverty and hardship on its people, ought to be made to pay to the uttermost farthing for the mischief they had done. The exhibition was intended to make it possible that when the time for the material restoration of Belgium arrived—and soon might it arrive—it should be carried out on the best lines, so as to bring back as far as possible the beauty and prosperity which had been trampled underfoot.

M. La Fontaine thanked the English people for having given Belgians a home where they could prepare the material reconstruction of their country.

The Belgian Minister said that England, who had drawn the sword for Belgium and given a paternal reception to its citizens, now procured them the delightful sensation of hope by opening in that exhibition the door of the future. They turned towards the new Belgium full of hope and confidence. Confidence they
had never lost, and it would sustain
to the end.

Mr. G. Montagu Harris, represe
the International Association of G
Cities, and Sir Cecil Hertslet also s
Mr. Henry Vivian mentioned that i
work of rebuilding Belgium it wa
tended to have the co-operation of Be
architects and surveyors. The comi
required £200 as soon as possible, so
it might proceed with its work.

From the drawings on view at the E
tion, it is evidently intended that the
of renovation shall embrace two ver
portant considerations, viz., the pre
tion of the old charm and pictur
aspect which distinguished the a
cities and towns of Belgium, with the
duction of those modern health conc
which are equally important.

OBITUARY.

Mr. William Henry Duffiel
F.R.I.B.A.

Mr. Duffield, of Cloak Lane, E.C
has died at the age of fifty-four at B
ham, had built breweries at Nine
and elsewhere, and had a large g
practice in the City.

Mr. Samuel Flint Clarkson, F.R.

Mr. S. F. Clarkson, who has d
the age of seventy-five, was a
president of the Architectural Assoc
of which he was hon. secretary fro
to 1875, and had retired from p
about five years ago. He was for
teen years district surveyor for
Kensington, and afterwards for
Kensington.

Mr. William Henry Gibson, M.

Mr. W. H. Gibson, who has died
age of thirty-six at Bulawayo, had, i
junction with Mr. J. D. Robertso
the open competitions for mu
offices at Bulawayo and at Boksbur
had been selected by Mr. Herbert
F.R.I.B.A., to assist on the designs
new Government offices at Pretori

Mr. Samuel Douglas Topley, A.R.

We greatly regret to record the
at the early age of thirty-o
March 31, of Mr. Samuel Douglas
A.R.I.B.A., of Palace Chambers,
Street, Westminster, and 77, B
Road, Lee, S.E. Until the war br
Mr. Topley was in partnership w
Paget L. Baxter, who is now on act
vice in France, and the partne
erected business premises in High
Norbury, of which the designs we
bited in last year's Academy.
Topley, who was an Associate me
the Council of the R.I.B.A., show
powers of debate during the discus
the Charter question, and he was s
commended for the able services
rendered in connection with the n
of fees. He died of pneumonia
very short illness.

Mr. J. C. Hill.

The death is announced of M
Cathies Hill, who was formerly
known builder and brick merc
Northern London.-He started as a
man carpenter, but in 1881 he beg
ness as a speculative builder wi
capital. He built and acqui
financed the building of, over 2,00
in and near London and Peterborou
was also interested in brickworks in
parts of the country. In 1910 he
a member of the London County
but resigned his seat two years la

ARCHITECTURAL ASSOCIATION AND THE WAR.

Journal of the R.I.B.A. for March 20 appears the
g statement as to the position of the Architectural
ion in relation to the war: Members acquainted with
ortant work done by the Architectural Association in
ing of young men for the profession of architecture will
th regret that the Association is being badly hit by the
fering not only from the loss of subscriptions of members
e left their business for military service, but also from
serious falling-off of students in the schools. Before
broke out the new session promised to be one of exceptional
ccess. Over seventy students had entered for the Day
and the teaching staff had been engaged accordingly.
e outbreak of war some fifty students of the Day School
ined the Army, and the evening students have drifted
together and the schools have had to be closed. At the
moment no fewer than 350 members of the Association
war service, and although some of these have paid their
tions, it is not anticipated that the majority will be able
o, and it is not proposed to press them for payment.
ossible economy is being effected, and the teaching staff
luntarily accepted reduced salaries. It is expected that
cit on the session will amount to £1,000. . . .

laurice Webb, President of the Association (who in the
ys of the war joined the Royal Engineers as a private
since obtained a commission in that regiment), has
ed a letter to the President and Council of the Institute
ting them with the position of affairs and appealing for
tide the Association over their difficulties. "The
gement always given to us by the Institute," wrote Mr.
"leads us to hope that in the present circumstances of
difficulty they may see their way to help us. We, of
require money; but, in addition, we hope that in any
we may decide to issue we may include an expression of
gement from the Institute Council to continue the work
doing, which we believe is of real use to the profession."

ebb's appeal, which was strongly supported before the
by Mr. Leonard Stokes, Past President of the A.A., Mr.
sten Hall, the Acting President, and others, received a
mpathetic hearing, and the matter was referred to the
and House Committee to consider and report upon
sibility of making a liberal donation.

Committee have made a report stating that they felt
to take into consideration the burden of debt which still
upon the Institute, and also the estimated deficit for
rent year owing to the loss of subscriptions of the numerous
mbers serving with the Forces. They express regret that
dition of the Institute finances prevents their recommending
larger grant than £250 in addition to the usual annual
f £100.

ily the Council have a voice in the disposal of funds held
t for educational purposes which enables them to afford
sociation further assistance. The accumulated balance
Anderson-Webb Trust Fund amounts to £273, and the
of the fund, Sir Aston Webb and Mr. Macvicar Anderson,
sked the Council to sanction the payment to the Associa-
£250 out of this balance.

satisfactory to announce that the proposals have received
ction of the Council. By their adoption the Association
nefit at once to the extent of £600—a sum which will,
rate, help to smooth away immediate difficulties.

THE WAR AND ARTISTIC BUILDINGS.

ntly the well-known Italian society, "Leonardo da
" moved by the hideous destruction of artistic buildings
jects in France and Belgium during the present war,
the following resolution: "At the initiative of the
ta Leonardo da Vinci,' the Accademias, Universities,
ies, Societies, and Institutes of Art and Culture in Italy,
ng that our generation has the duty to guard the patri-
of art and culture which has been handed down and
ted to it, and that it is responsible to future ages for this
deposit, recalling the dispositions of Article 27 of the
Convention, which was revised in 1907 and accepted by
our States, ask that the artistic and historical monuments,
lleries and museums, the libraries and archives—in fine,
seats and collections of documents of art and culture be,
very effort, spared by the belligerent armies, during and
var operations, as being for the future glorious witnesses
past, and as belonging, not to one nation or another, but
whole civilised world." Since then a plebiscite of
al of this resolution has poured in on the "Leonardo"
he numerous historical and artistic societies of Italy, while
of other countries have already begun to send in their
on in large numbers.

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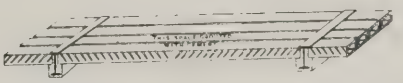

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TUTTE, Architect, 58, London Road, No
Portsmouth, and a form of Tender a
of the bills of quantities can be obtai
the undersigned on payment of a de
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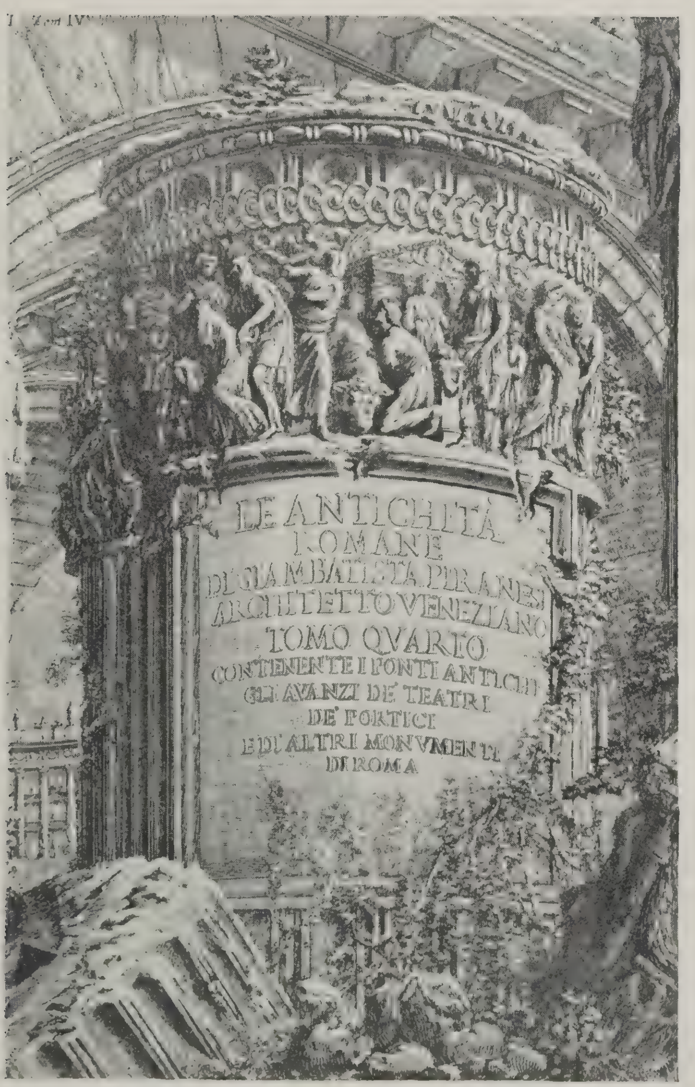
THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, April 21, 1915. Volume XLI. No. 1059.

No. 132



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

APRIL 21, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1059

EDITORIAL.

IT is stated in the "Glasgow Herald" that "the trade unions in the Glasgow building industry are offering strong opposition to the Corporation's acceptance of the Local Government Board's advice to restrain public work until after the war." We trust that this protest will be vigorously pressed home, that it will enlist public sympathy and support, and that other timorous or vacillating corporations will be similarly brought to book. It is not enough, however, to get at the Local Government Board in this roundabout way. That august body being manifestly in a state of unstable equilibrium on this momentous matter, a concerted effort should be made to prevent its toppling over in the wrong direction. A deputation representative of all the building interests should at once seek an interview with the Board, to urge the extreme gravity of the situation that is being created by the discouragement of building operations that is thought to be the intention of the Board. It is understood that the Glasgow trade unionists are approaching the Board on the subject, and this is well as far as it goes. Workers all over the country should make haste to follow the example; and, finally, a deputation combining all the interests involved should have but little difficulty in convincing the Government of the necessity for adopting a firm policy that, by promoting greater confidence among corporations, shall act persuasively for the encouragement of private enterprise in building, the public ear being very sensitive to the official voice.

* * * *

Surely this is a movement in which the Institute might fittingly take the lead. Architects are intimately concerned in it, because, as we have said, the paltering attitude of the Government Departments is not only directly intimidating corporations, but is restraining private enterprise by exaggerating the feeling of mistrust which it is the duty of a wise Government to allay to the utmost of its power. Possibly that duty is but inadequately realised by a Cabinet that, as may be easily imagined, is preoccupied with matters of more pressing importance, and is therefore compelled to let the civil Departments run on a loose rein. Consequent erratic courses can only be checked by public action, for which, surely, there is here a just occasion. It might have been anticipated with a good deal of confidence that the war would have stirred even the Institute out of its inveterate lethargy, but we are pained to confess that we see too few indications of an awakened or a heightened sense of responsibility for the interests of the profession. too few indications of a developing power of taking the lead and the initiative in ameliorative movements, to warrant an assumption that the Council is making anything like an adequate use of the latent driving force and effective influence undoubtedly at its command. Much good work it is doubtless doing in its old academically unostentatious way; but, in these stirring times, the normal pretty
affectation of shrinking modesty is apt to be m
strued—to become, in effect, the opposite vice
blatant self-assertion of which the Institute see
go in chronic fear—and a more aggressive pol
more patent display of activity. and greater prom
to seize such opportunities as the one we have ve
to indicate, would bring a welcome reassuranc
harassed profession that its interests are being
fully served by the body to whom it has the best
and should have the best reason, to look for gu
and protection at all times; but very specially
hour of tribulation.

* * * *

Unfortunately any weight that the workers
lend to a united protest against Governmen
couragement of building is to some extent lesse
the importation of the wages question. Thu
"mass meeting" comprising about 3,000 w
engaged in the building industry in Sheffield, it
very well to resolve "to arrange a conference w
employers of all sections to discuss the position
by the war, and to submit such suggestions as
make for the safeguarding and betterment
trade," but, as might have been expected from
invariable experience in the past, the patriot
public polity to which this resolution portends
purely platonic, as witness the further and inop
(or ineptly opportunist) resolution that "the q
of wages should be raised, on account of the in
cost of living."

* * * *

It is a pity that these diverse items could not
separate, but the trade unions seem to be
incapable of purity of motive—that is to say, t
never refrain, in season or out of season, from d
in the wages question, and the rather too obvi
of disinterestedness in the present instance ma
workers impossible, or at best very inconvenient
a movement from which it is essential that
sectional and selfish interests should be rig
excluded. To press for higher wages at a
when the one vital question is, or soon will be,
provide any employment at all, is an almost
"suggestion for the safeguarding and better
the trade." "First catch your hare." It is very
whether the workers are awake to the situation
were, they would surely realise that in the prese
they cannot expect to escape hardship—espec
by transferring their share of it to the shoulde
already overburdened employer.

* * * *

A letter from Mr. S. B. K. Caulfield sugges
opening for architects' assistants. During
fifteen years, he says, he has seen on an aver
man a day who has called as an agent for a

l, and the most common point he has noticed has
e general inferior training of the Englishman
ed with the German. With a few brilliant
ns, he says—and the saving clause shows an
ly adroit regard for tender susceptibility—the
men appear to have no technical knowledge
a few elementary points relating to their par-
goods. He is sure that in this way the sales of
xcellent materials have suffered, while inferior
ns from abroad have gained acceptance for no
reason than that of being introduced with
skill. Lest this should seem rather to reflect
chitects also, who might be hastily assumed to
capable of supplying the agent's deficiencies, it
e admitted that while the architect may be
l to be fully conversant with his own require-
e cannot be expected to know in what particu-
w material will meet them. That is the agent's
he argument, and the trouble is that the agent
lom capable of supplying intelligent answers to
nticipated questions that arise out of the archi-
ore intimate technical knowledge.

* * * *

f the present conditions there arises, Mr. Caul-
nks, the great opportunity to effect reform in
tter. "Manufacturers are keenly alive to the
, consumers are anxious to use British goods.
ill be a big demand for trained men to bring
classes together. He suggests, therefore, " that
ts' assistants, with no prospects of a practice,
ake good use of their experience in this field."
rtes they needs must pocket their pride, and
s a serious proposition " the Dignity of Busi-
nd they may do this with the better grace
ing how drastic a revision of old ideals must
om the war, and how necessary it is that the
nt that the country can afford shall be turned
ive account in the great commercial and indus-
of the nations which will ultimately determine
er and place among them. For mere snobbery
s prejudice we shall have no use. As a deter-
factor in deciding upon a career, these petty
l be but as dust in the balance ; aptitude will be
e consideration, and this should be ascertained
loped in the schools.

* * * *

admirable fairness and thoroughness, Mr.
l would make provision for the better technical
nt of the lay agent as well as for the special
of the architect's assistant who wishes to adopt
rcial career. Travellers are to get a course of
in architecture, architects are to be trained as
s. Obviously it would be an equal drawback
s if the traveller were too little of the architect,
chitect were too little of the traveller, or either
much of the one or the other. So far from
as some superior persons may feel, that things
ne to a pretty pass when it can be calmly pro-
at "stickit" architects shall become bagmen,
d rather applaud Mr. Caulfield's courage in
is commonsense plea for efficiency and adapta-
If a young architect finds that he has chosen
g calling, whether his choice happens to be
either by his inability to get work or his
nt performance of it, or a pronounced distaste
all means let him seek some better outlet for
gies ; and if he should be so fortunate as to find
g to which his architectural training could be
extent applied, he will have the less to regret in
er of wasted years. At all events, his profitable
hment of a profession that has given him
road hints that it does not want him, and his
of a business that may have better reason for
him precious, is excellent from both points of
d if, from the change of occupation, there is an
l gain—to the man, to the business, and to the
n—what but false pride shall prevent its being made? Surely nothing, except the momentary dearth of openings, and the extreme difficulty of persuading the builder's merchant that the youth who has failed as an architect's assistant is *ipso facto* a born bagman. Nevertheless, it is apparent that Mr. Caulfield has brought grist to the mill, and is to be thanked for the exertion, whether or not good-fortune betide the grinding.

* * * *

In the House of Commons last Thursday there was a further long discussion on the Government timber-purchasing contract, but it revealed no new fact or argument, and its barrenness and futility may be fairly inferred from some observations that were dropped by Mr. Bonar Law, who said, " I am inclined to think we are making too much of this matter," and by adding, " I certainly am convinced that buying timber through a single agent is the right way," " I am not at all satisfied that Mr. Meyer is not as good a man as the Government could have got," and " I am satisfied that it would not be a wise thing for the House to frighten Departments from doing something a little unusual in emergencies, and therefore we should not be too hard on them, even if they did not make the best possible bargain," he pretty accurately expressed the general feeling. That the Government might easily have made a more businesslike arrangement is perfectly obvious, for it is clearly absurd to pay an agent a percentage on the amount of his purchases : and if the Government had in the first instance availed themselves of the expert advice which was freely and abundantly at their disposal they would have saved themselves some little expense and a good deal of heckling.

* * * *

It is gratifying to learn that the series of sectional exhibitions organised by the Commercial Intelligence Branch of the Board of Trade at 32, Cheapside, London, with a view to assisting British manufacturers to capture enemy trade, will be followed by a British Industrial Fair to be held at the Royal Agricultural Hall, Islington, from May 10 to 21 next. It is still more satisfactory to learn that not only has all the available space been allotted, but that so keen is the interest of traders that the hall could have been filled twice over, although, quite rightly, the articles to be exhibited are restricted to such as come into direct comparison and competition with the exhibits shown in the sectional collections of foreign samples which were the chief feature of the " Exchange Meetings " in Cheapside, the latest of which, held last week, comprised hand and edged tools. As our readers are aware, we have followed with close attention the work that the Commercial Intelligence Branch is doing to assist British manufacturers, and we have taken this interest in it not merely because it is extremely valuable *per se*, but because upon the success or failure of this initial step the fate depends of that larger measure of State aid to industry without which this country is at a great disadvantage in competing against foreign rivals who are able to lean heavily on Government support.

* * * *

Sir Laurence Gomme is already making excellent use of his newly-acquired leisure. Last week he delivered, to the Bishopsgate Ward Club, an admirable lecture on " London an Imperial City "—a title that the City Fathers should regard as hortatory and axiomatic. They might, indeed, be well advised to adopt it as a standing toast at their innumerable banquets ; for it happens to embody— as no doubt Sir Laurence intended it should—a truth that seems as yet too tremendous for the City Fathers to grasp. London, as Sir Laurence remarked, has played a great part in founding a great Empire. He was too polite to add, as we have no hesitation in doing, that it has yet to rise to an adequate architectural expression of its greatness.

HERE AND THERE.

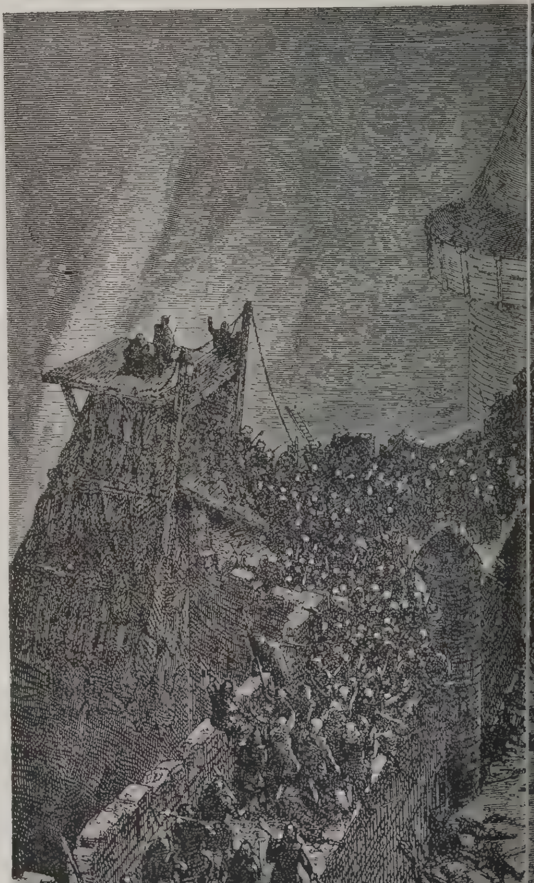
MR. BELLOC tells us, and his opinion is worth having, that the present war will see the end of great forts. Apparently the idea is that monster guns can knock the masonry wall and the reinforced concrete glacis to smithereens, and in place of the structures which have played so prominent a part in the development of the architecture of the past we are to have earthworks, with burrowings in the soil so mysterious in character that the enemy will not know how or where to make his attack with precision. Assuming this to be an accurate prophecy, one may proceed to draw up the true and last testament of military architecture, and the architect's connection with War. That he has played a goodly part in days gone by, I have taken occasion recently to indicate, by citing Vitruvius and Sanmichele as prominent exponents of the art; and there is the great Vauban, with his systems of fortifications, to take account of also; while Viollet-le-Duc had so much to say on the subject that one is disposed to think of him as almost as much a military architect as a restorer of Gothic cathedrals. It was the Greeks and the Romans, especially the Romans, who set the pace in these matters, and history offers plenty of arresting evidence of their methods.

* * * *

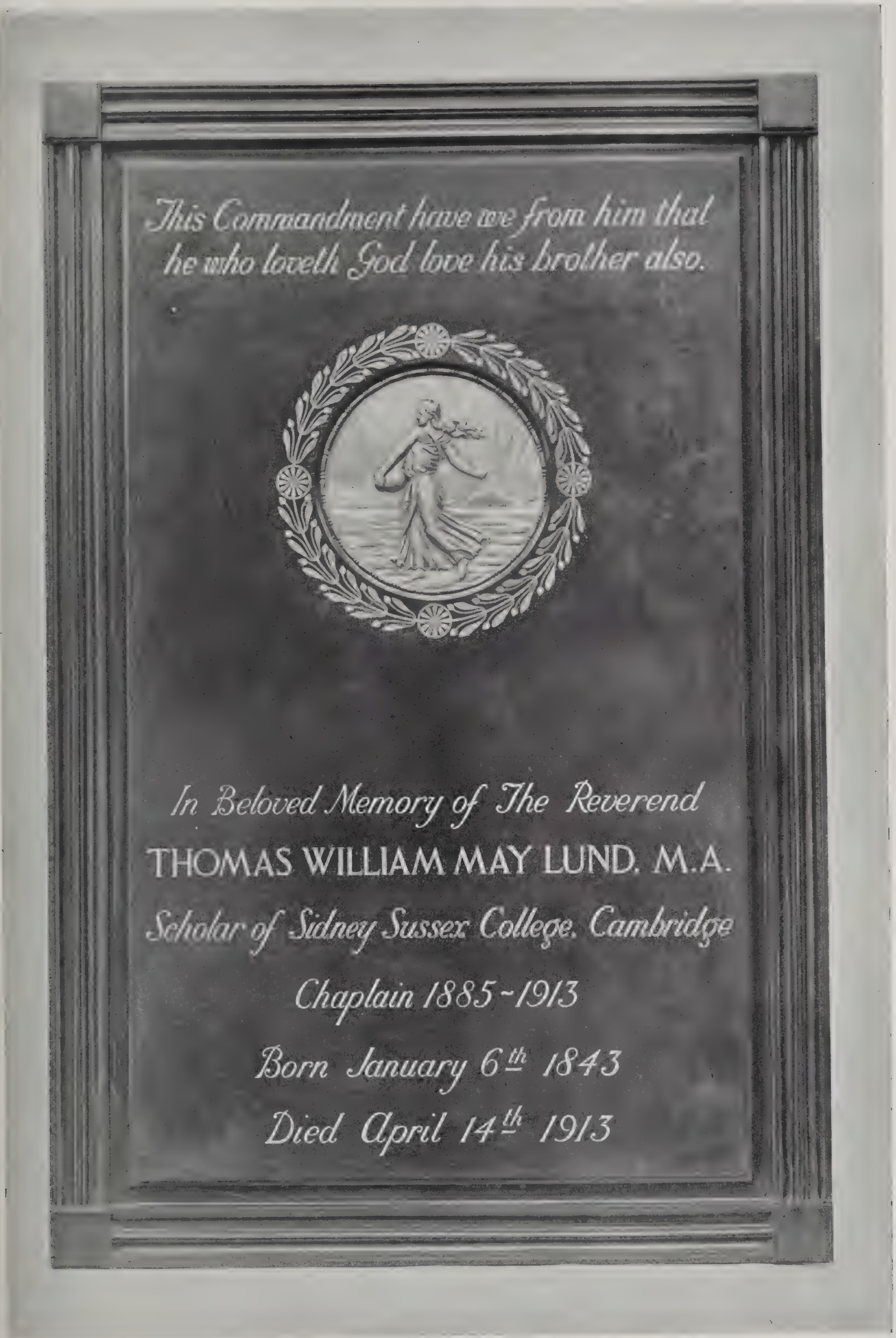
The influence of military methods of attack on the design of castles and fortified houses of the Middle Ages is a subject of much interest. Some features which arose out of military conditions, like the battlemented parapet, still persist in buildings of the present day, though now, of course, they are no more than decorative survivals, just as the dentilled stone cornice is a decorative survival of the old wooden roof. Mr. Hamilton Thompson, in his book on "Military Architecture in England during the Middle Ages," devotes a most fascinating chapter to the progress of attack and defence, and as I do not pretend to any first-hand knowledge of the subject, I am here making an inroad into his pages, and taking an illustration which serves admirably to elucidate a point in the description of the subject. As a natural result of the development of the art of siege, the palisaded earthwork of the Middle Ages gave way to the stone-walled town and the castle with its curtain wall. "Eye-witness" has reminded us of the solidity of old walls, and it was this quality particularly which gave rise to those two formidable engines of attack, the battering-ram and the movable belfry. The battering-ram was an enormous pole, furnished with an iron head. It was slung by chains within a wooden frame mounted on wheels, and was brought up to the wall and driven against it again and again. The men who worked the ram were protected by a pent-house roof, very strongly constructed with raw hides, or some other incombustible material, as a protection against the fire and missiles which were thrown down by the defenders. While the ram delivered its blows upon the face of the wall, sappers and miners made an attack upon the foundations with the "bore," a heavy pole which slowly broke up the stonework and hollowed out a cavity in the foundations. This work was assisted by sappers who, advancing to the wall beneath the shelter of inclined frames of timber or wickerwork which they held in front of them, hacked away the stonework with picks, and when a sufficient hollow had been made the miners underpinned the walls with logs, set fire to them, and then retired. This device, Mr. Thompson points out, was constantly used throughout the Middle Ages to effect a breach, and was successful at Château-Gaillard, but obviously it must have occupied much time, and must often have failed in its purpose. Then came into play the movable belfry. While the battering-ram, the bore, and the mine threatened the stability of the walls, parties of the besiegers attempted to force an entry into the stronghold. The simple method of bringing up fuel to the main gateway and burning dow
door was frustrated in progress of time by gr
attention to the defences of the gateway, and the
forcement of its doors by herses or portcu
Scaling ladders were moved up against the walls;
much more effective method was afforded by the b
This was a tower-like erection of several storey
top floor being approximately on a level with the
the ramparts. Ladders gave access from one fl
another, the besiegers entering from the groun
working their way up to the top, where they proc
to fight over on to the castle by means of a
bridge. A very good idea of what took place is
by the illustration on this page.

* * * *

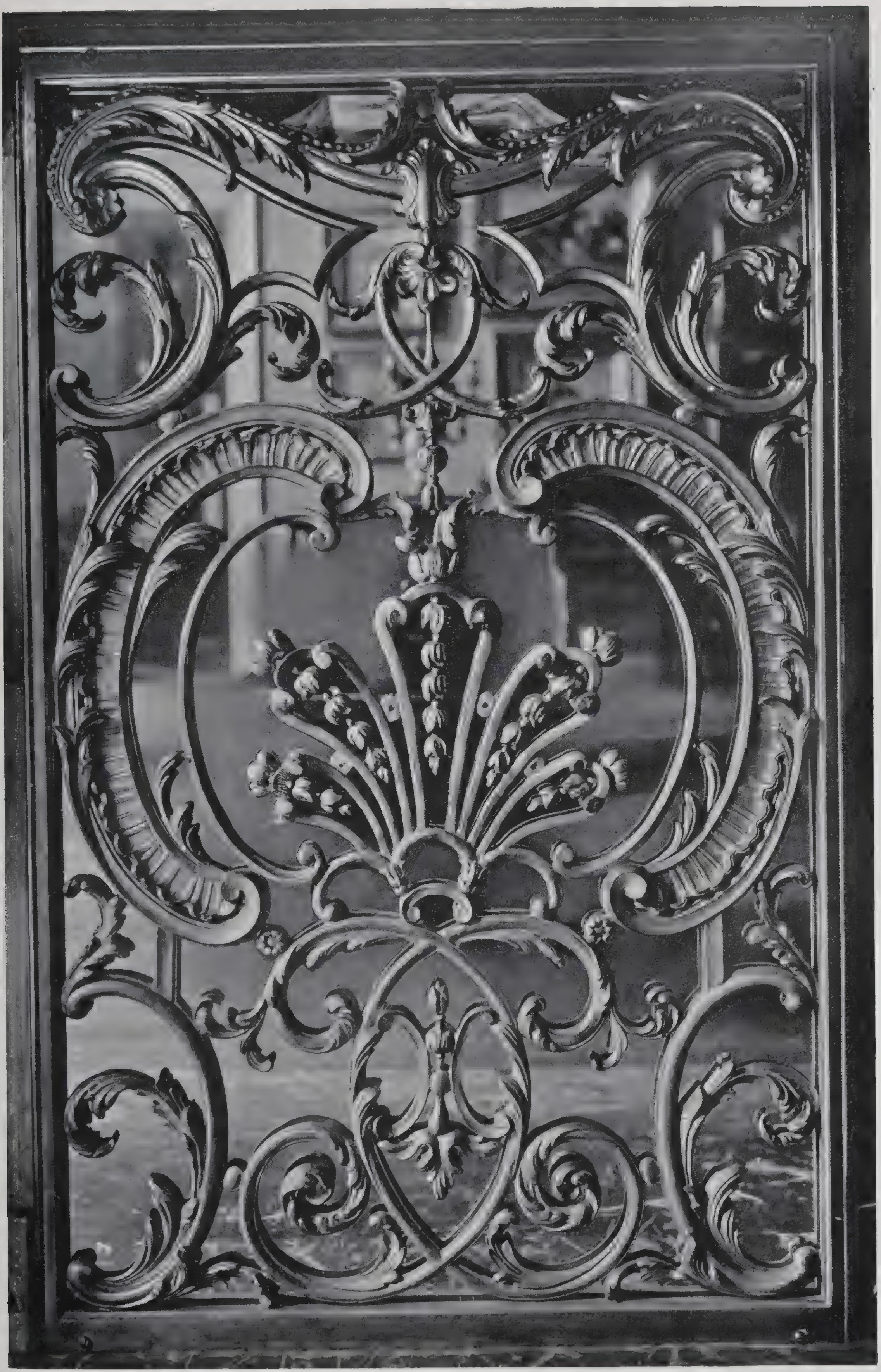
Against the great catapults which threw re
stones and bolts, the besieged were practically p
less. To quote further from our author: "Th
improvements in defence, designed to mee
improved attack, consisted in the protection o
ramparts. Behind the outer parapet of the wa
the rampart-walk, a level path along the top of th
which was sometimes protected by a parapet i
rear. (The word 'parapet,' we may note in pass
derived from the two Italian words 'para' a de
and 'petto,' the breast—*i.e.*, a low wall prac
covering a man standing upright.) From an
date in stone fortification it was customary to bre
upper portion of the parapets at intervals by op
called crenellations, through which it was possil
an archer to command a limited part of the f
right angles to the wall. The crenellations, ho
were narrow compared with the unbroken pa
between them and even in advanced examp
fortifications, like the ramparts of Aigues-Mort
Carcassonne, these unbroken pieces are stil



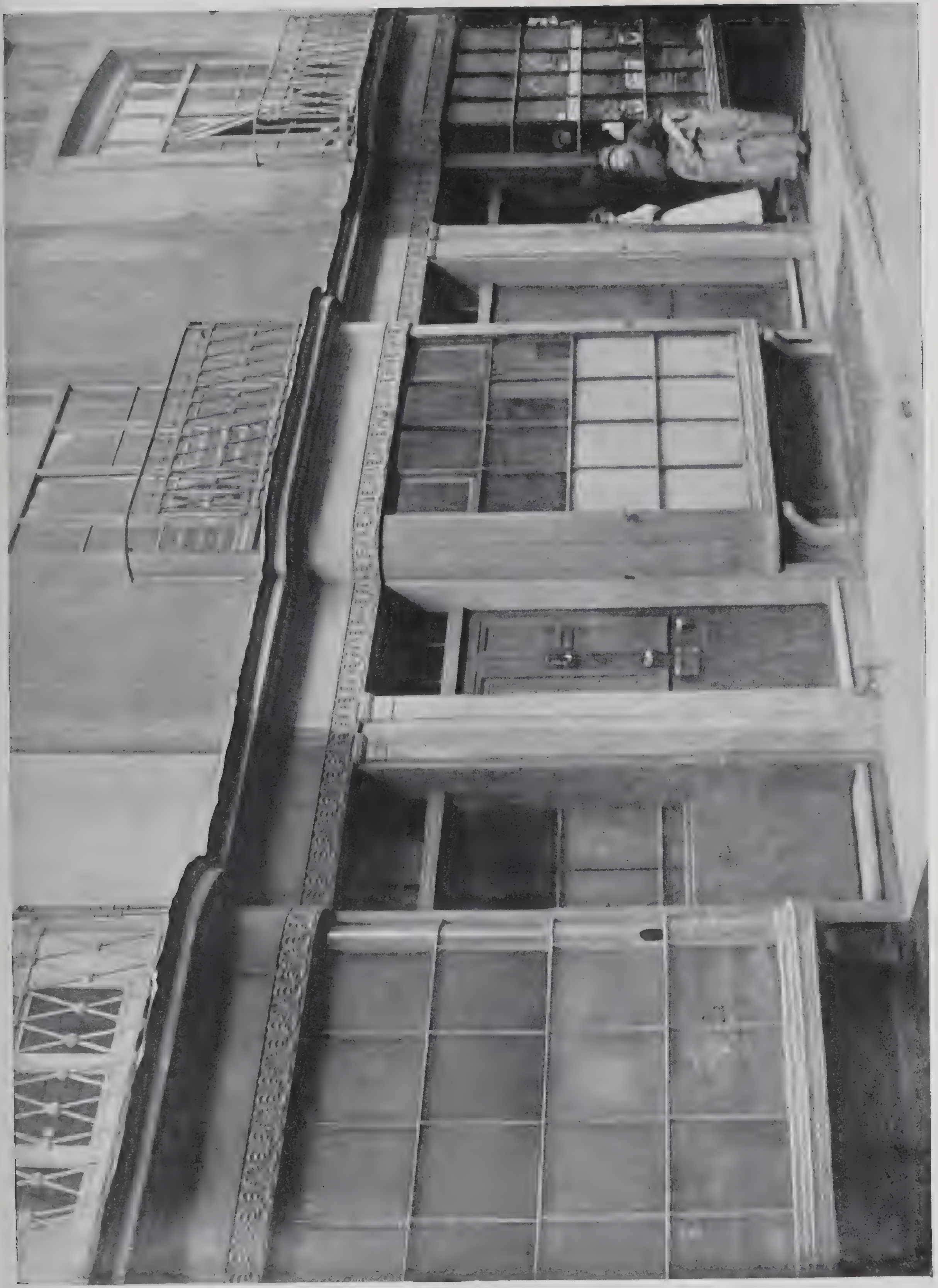
ATTACK ON A MEDIÆVAL CASTLE.


This Commandment have we from him that
he who loveth God love his brother also.
In Beloved Memory of The Reverend
THOMAS WILLIAM MAY LUND, M.A.
Scholar of Sidney Sussex College, Cambridge
Chaplain 1885-1913
Born January 6th 1843
Died April 14th 1913

CURRENT ARCHITECTURE (SERIES II.). XV.—MEMORIAL TABLET IN CHURCH FOR THE BLIND, LIVERPOOL.
WILLINK AND THICKNESSE, FF.R.I.B.A., ARCHITECTS.



DETAILS OF CRAFTSMANSHIP. XIV.—FRENCH FIREBACK IN THE WALLACE COLLECTION, LONDON.



SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XLI.—SHOP PREMISES IN WOBURN PLACE, LONDON, W.C.

[illegible]
[illegible]
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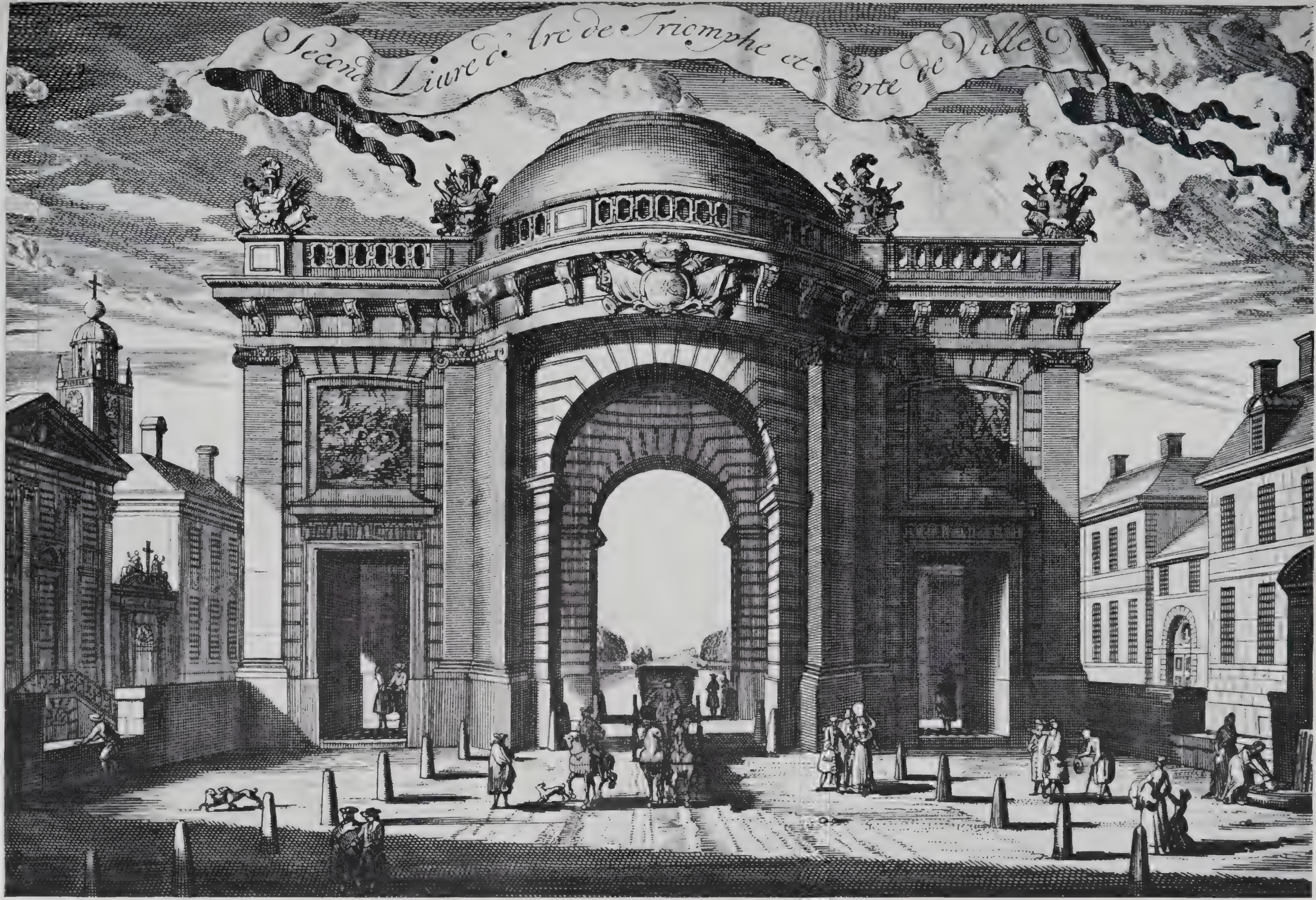
Second Liure d'Arc de Triomphe et Porte de Ville

DESIGNS BY DANIEL MAROT. VI. A TRIUMPHAL ARCH.

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OF THE
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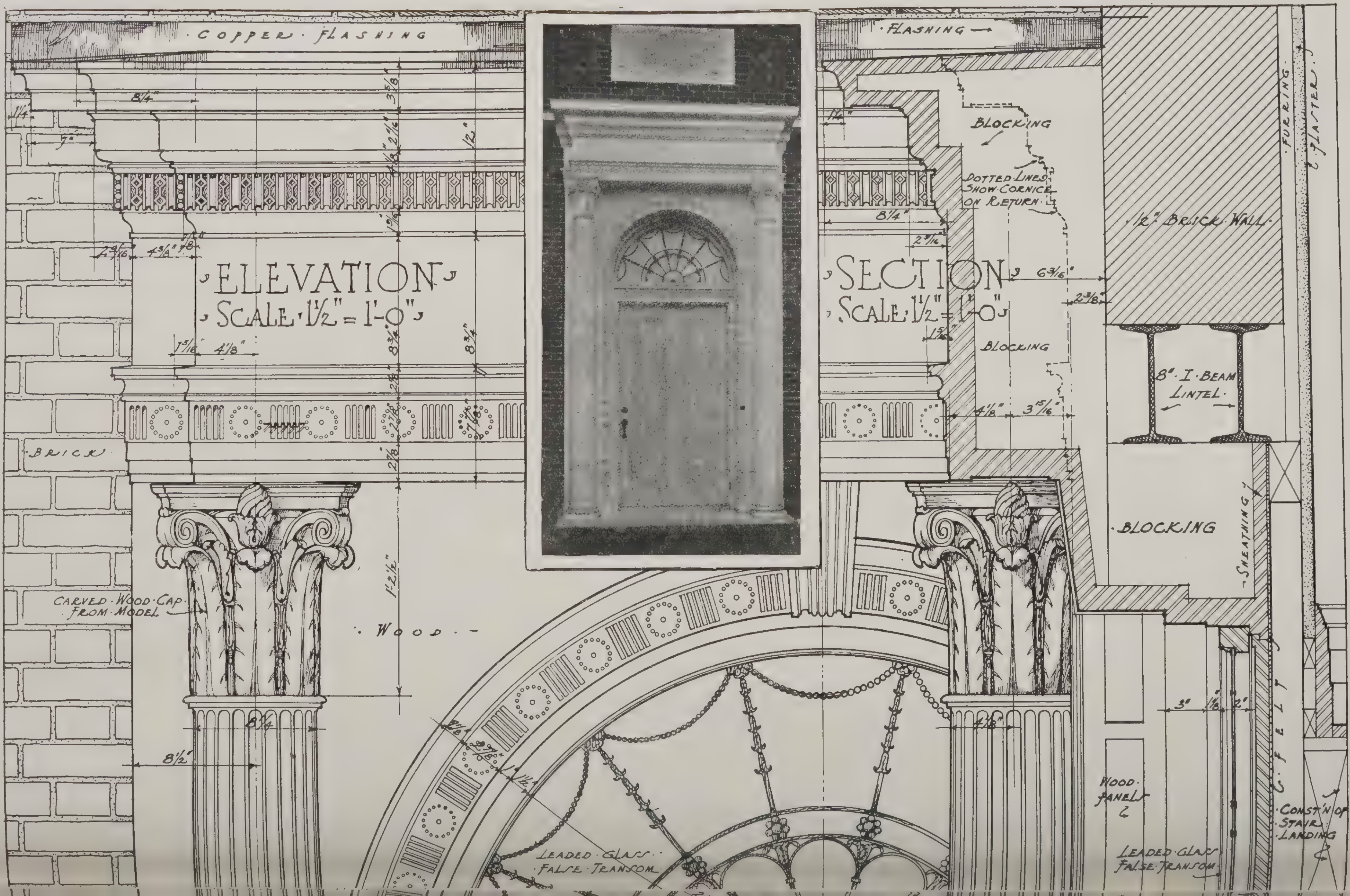
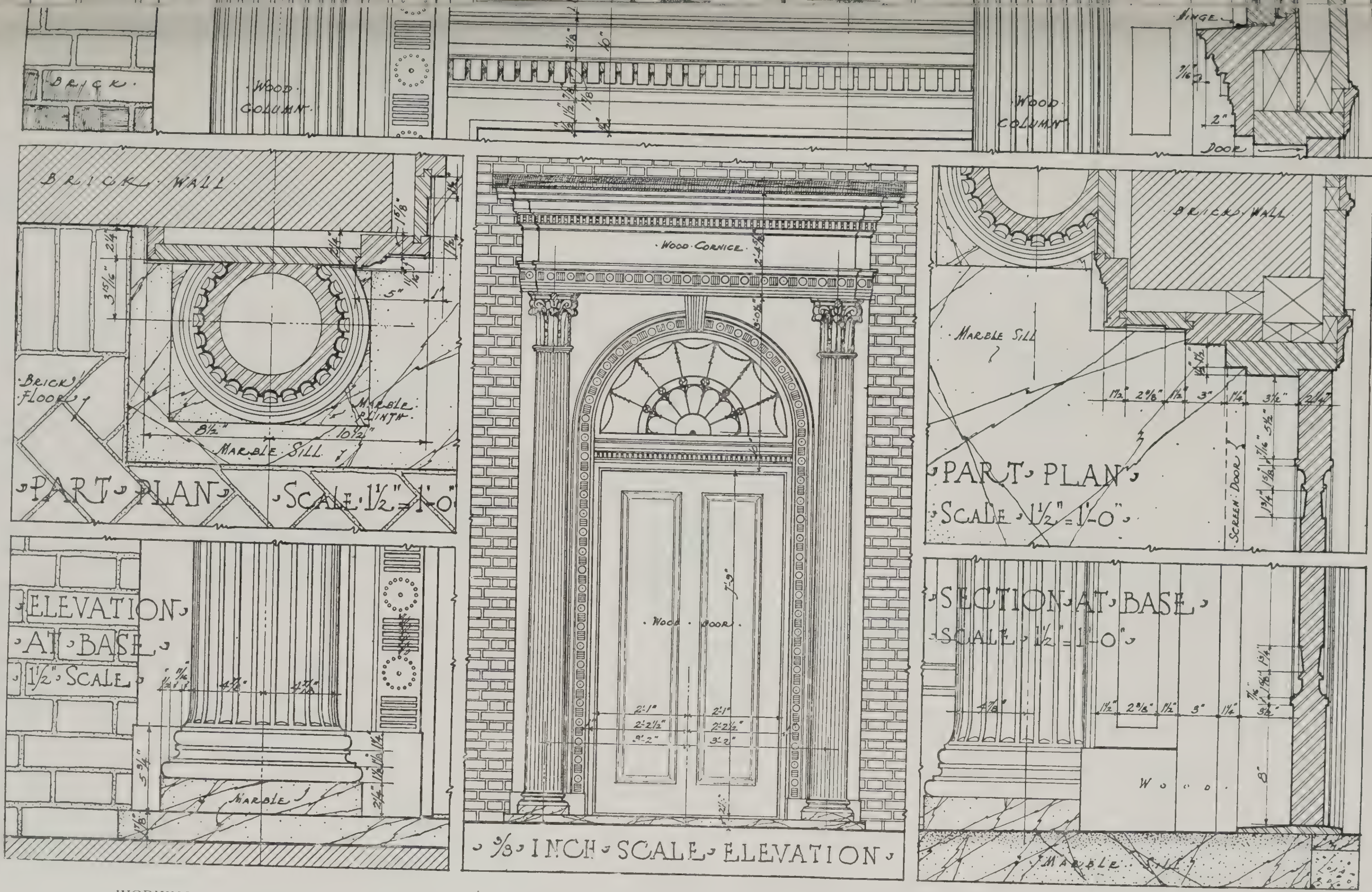

COPPER FLASHING
FLASHING
FURRING
PLASTER
BLOCKING
DOTTED LINES SHOW CORNICE ON RETURN
12" BRICK WALL
ELEVATION
SCALE 1½" = 1'-0"
SECTION
SCALE 1½" = 1'-0"
BLOCKING
8" I-BEAM LINTEL
BRICK
BLOCKING
SHEATHING
CARVED WOOD CAP FROM MODEL
WOOD
FELT
WOOD PANEL
CONST'N OF STAIR LANDING
LEADED GLASS FALSE TRANSOM
LEADED GLASS FALSE TRANSOM



WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (SERIES II.). V.—ENTRANCE DOORWAY TO HOUSE ON LONG ISLAND, NEW YORK.

ALBRO AND LINDEBERG, ARCHITECTS.

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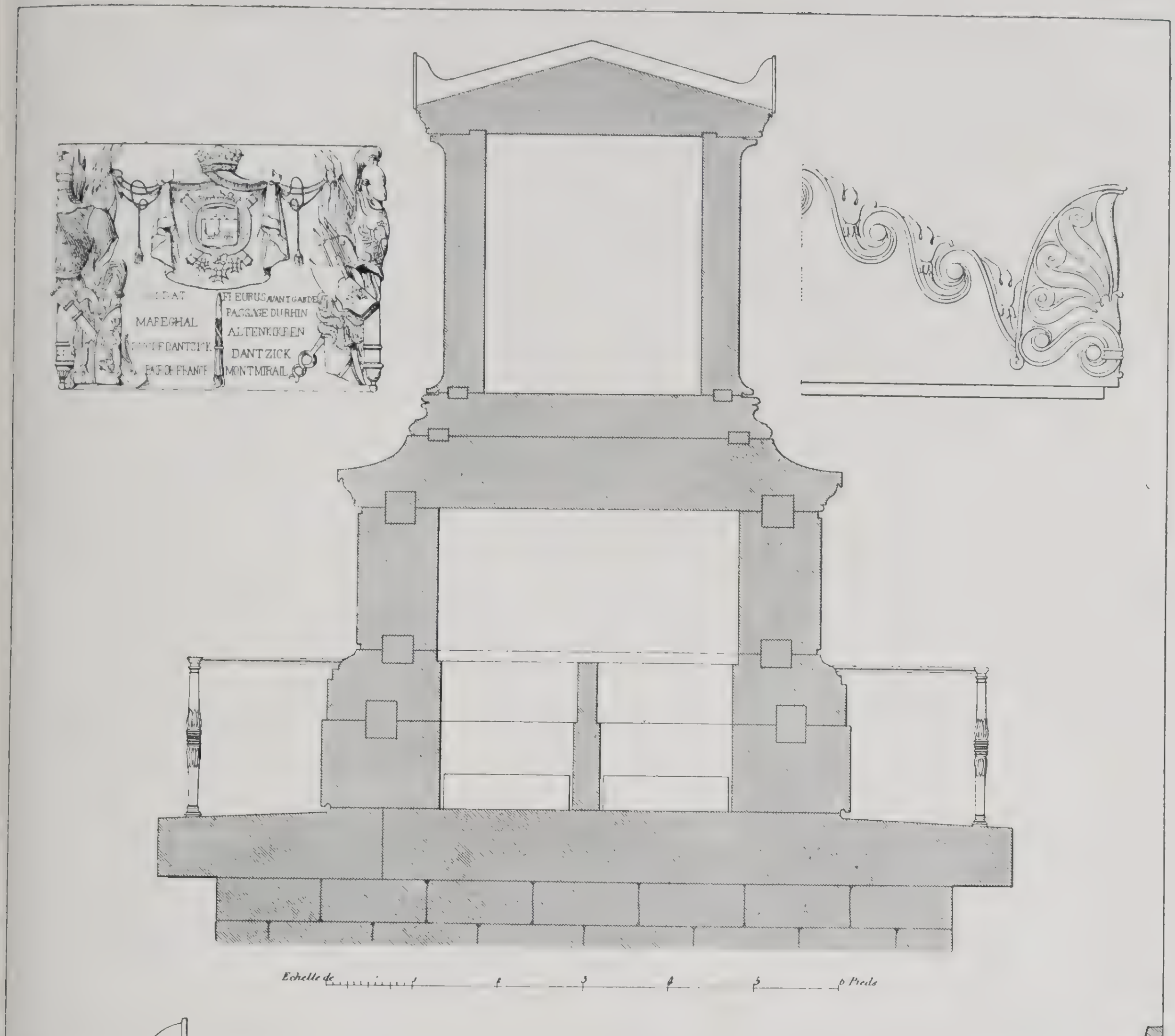
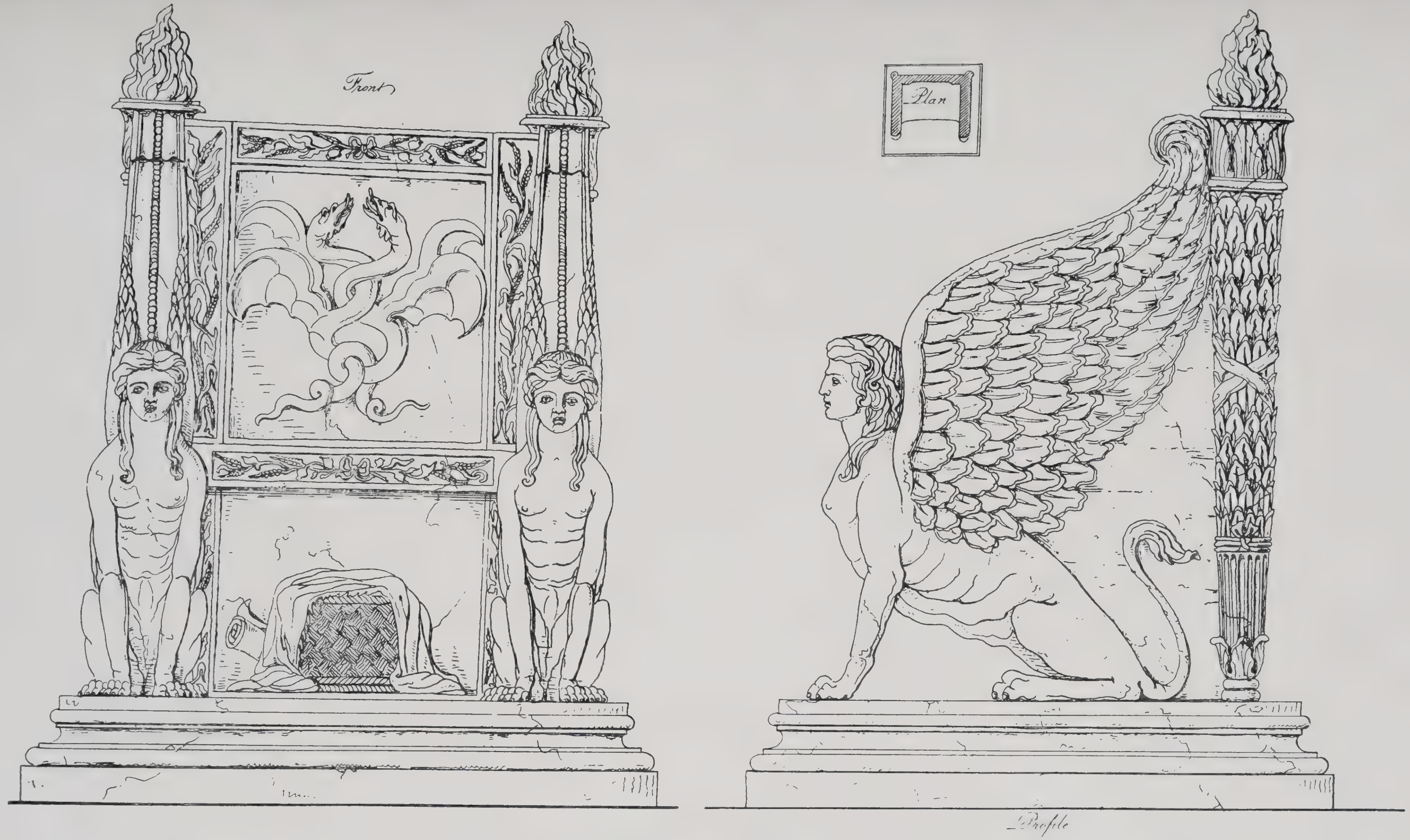
OF THE
UNIVERSITY OF ILLINOIS



FRENCH MONUMENTS. XIII.—LEFÊBVRE MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.



DRAWINGS OF ROMAN ORNAMENT. IX.—ANTIQUE MARBLE SEAT, ROME.

OF THE
TY OF IL

although they are pierced by arrow slits. In siege, then, it became customary to supply the with projecting wooden galleries, known as ngs or brattices, which could be entered from nellations. The joists of the flooring passed h holes at the foot of the parapet, and were often n to the outer gallery and an inner gallery cover- rampart-wall. Both galleries had a common In the floor of the outer gallery, between the were holes through which missiles could be d upon the besiegers at the foot of the wall; slits in the outer face were still available for t firing. The defenders of the ramparts were ple to work under shelter with some command the field and the foot of the wall." It is interest- consider this outer gallery from the point of view original use. It has such a decorative effect at of the bastion that we are rather apt to think of aving been designed as a pleasant architectural o the tower, whereas, in reality, as the above e shows, it came into use entirely as an addi- neans of defence.

UBIQUE.

THE PLATES.

Memorial Tablet, Liverpool.

tablet to the late Rev. T. W. M. Lund in the hurch for the Blind at Liverpool, erected in nemory of his chaplaincy from 1885 to 1913, is nze, with letters and plaque in silver. It was ed by Messrs. Willink and Thicknesse, .B.A., of Liverpool, and made by Messrs. J. W. and Sons, of Frome.

A French Fireback.

fireback, from the Wallace Collection, is an ely fine example of the Louis Quinze period. iron, gilt, and has behind it a mirror, the practice been to fill in the opening during the summer with an ornamental grille or fireback of this The curves in the lower portion are particularly , and the whole design shows a flowing grace is characteristic of Louis XV. ornamentation. ly features which call for criticism are the two curves on either side of the centre, these being oo heavy in appearance, in comparison with the aracter of the rest of the work.

Premises, Woburn Buildings, Woburn Place.

ne West-Central district of London there still quite a number of terraces of houses of the late an period, Woburn Buildings being a typical e. The little shop premises shown on the plate eworthy for the treatment of the shop front, door on either side, and a facia enriched by a ective band of acanthus ornament in low relief; balcony to the first-floor window serving to te the composition.

A Triumphal Arch.

evious issues we have commented on the general er of Daniel Marot's designs for triumphal and in publishing still another example of this nere is no necessity for detailed criticism: the ions are themselves the chief interest. The shown this week is a very successful treatment ntral rotunda pierced by a high archway, with side openings.

ntrance Doorway to an American House.

Colonial architecture of America is held in high by architects now practising in the United and many a house has been erected in the l style. Tall proportion and delicacy of detail outstanding features of Colonial woodwork, and Messrs. Albro and Lindeberg have translated fectively in the doorway to a house on Long Island, New York, of which details are given on the double-page plate. Our illustration is taken from a recent issue of "Architecture."

The Lefèbvre Monument.

The plate now given supplements the one published last week, which showed the elevation of the monument. From the plan and section it will be noted that provision is made for the Marshal's wife, as well as for the dead soldier himself.

An Antique Roman Seat.

This illustration of an antique marble seat from the Vatican Museum is the last in the series of drawings of Roman ornament. These illustrations have been taken from the work published in the early part of the nineteenth century by Tatham, of whom the following particulars may be now appropriately given: Charles Heathcote Tatham was born in 1772 in Westminster. At the age of sixteen he became a clerk to Samuel Pepys Cockerell, and three years later was taken up by Henry Holland, who was then engaged on the building of the Brighton Pavilion and alterations to Carlton House. Holland perceived that his protégé possessed considerable talent, and he offered him £60 a year in order that he might pursue his studies at Rome. With this allowance, and a loan of £100 from John Birch, King's surgeon, Tatham left England in 1794 for Italy, where he stayed for three years. During his sojourn he made the acquaintanceof Canova, Angelica Kauffmann, Bonomi, and, most important of all, the Earl of Carlisle, who proved of great assistance to him in his subsequent career. In 1799 Tatham etched and published "Ancient Ornamental Architecture at Rome and in Italy," a second editon of which appeared in 1803. Holland had commissioned him to make a collection of antique fragments in Italy, and this Tatham did; many of the fragments he collected being now in the Soane Museum in Lincoln's Inn Fields. Tatham appears to have had a fairly successful architectural practice. In 1802 he designed the sculpture gallery at Castle Howard and did work at Naworth for Earl Carlisle, and in 1807 he designed and carried out the picture gallery at Brocklesby for Lord Yarborough. He seems however to have been a somewhat contentious man, and as the result of law suits with builders and clients he gradually lost his practice and eventually found himself in pecuniary difficulties. The house which he had built for himself in Alpha Road, Poplar, was sold, together with his collections there, and at the age of sixty-two it seemed as though he would have to start life over again. Friends, however, rallied to his support, and the position of Warden of Holy Trinity Hospital, Greenwich, was secured for him. He died at Greenwich in 1842.

CORRESPONDENCE.

"Build Now."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I take leave to congratulate you upon the persistency with which you "keep pegging away" in the effort to convince a timid public that now is the time to build. Your insistence on this point has been, I am sure, of great assistance to architects, to whom, as I can personally testify, your unfailing and, I think, well-founded optimism affords much-needed encouragement and support, besides supplying them with cogent arguments which should be extremely useful for the persuasion of reluctant clients. I have been very glad to put them to this use; and perhaps I may be permitted to add that, in these times of depression, it is a great relief to turn to your cheery pages in the forefront of the Journal. I mean both those denoted "Editorial" and the ever-buoyant page in which

"Ubique" never fails to delight us, except on those occasions—happily very rare—when his brilliant contribution is missing.

In asking you to accept my most sincere thanks for all that THE ARCHITECTS' AND BUILDERS' JOURNAL is doing for the profession, I am sure I am expressing the general feeling of your readers.

V. W.

THE ROYAL GOLD MEDALLIST, 1915.

MR. FRANK DARLING, of whom we have much pleasure in reproducing the accompanying photograph, is, as we noted in making the announcement of the award some weeks ago, the first Canadian upon whom the Royal Medal of the R.I.B.A. has been bestowed. He is the son of the Rev. W. S. Darling, who was for many years rector of Holy Trinity Church, Toronto. Born at Scarborough, Ontario, in 1850, Frank Darling was educated at Upper Canada College and Trinity College School. Coming to England in 1870, he studied under George Edmund Street, the architect of the Royal Courts of Justice, and also under Sir Arthur Blomfield. One of his friends has said of him that "his father started out to make him a banker, but a hard-headed manager" apparently thought that the candidate had too much artistic temperament for so dreary a business as banking, with the result that Mr. Darling ultimately adopted a more congenial method of building up banks. At the age of sixteen Darling entered the drawing office of Henry Langley, on the south-east corner of King and Jordan Streets, Toronto, where now stands one of his great bank buildings. He began practice in 1875, and entered into partnership with John A. Pearson in 1895. Mr. Darling's name is associated with many of the most important buildings in Canada, particularly in Toronto, chief among them being the General Hospital, the Canadian Pacific Railway building, the Royal Ontario Museum, Electric Offices, buildings for Toronto University and Trinity College, head offices for the Bank of Nova Scotia, the Dominion, Union, and Standard Banks, and innumerable residences.

Winnipeg contains many examples of Mr. Darling's work, among them being the General Post Office, the
Grain Exchange, and the Union, Nova Scoti
Imperial Banks, and his hand is seen in a Ca
Bank of Commerce in nearly every important
Canada, as well as in the Sun Life Office at Mc
the Ontario Mutual Life at Waterloo, the Canac
at Vancouver, and the Bank of Nova Scotia at
town, Jamaica. This is but a fragment of a ver
list, but it is sufficient to indicate the variet
character of the work that has merited the dist
that may be fairly regarded as an honour to (
as well as to Mr. Darling. His compatriot, Mı
Baker, F.R.I.B.A., has well said that "while the
country, from the Atlantic to the Pacific, honoı
acclaims him, the man himself, modest in the e
would be the first to say that the Royal Gold
although conferred upon him as the medium, is
conferred upon our beloved native land, Cana
was the commissions of its people, and the cou
its people to spend money upon art, which
possible the outward demonstration of his geni
masterly ability." Honour is alike due to the c
that afforded the opportunities and to the arti
has turned them to such excellent account.

MR. FRANK DARLING, ROYAL GOLD MEDALLIST, 1915.

WESTMINSTER HALL ROOF.

IN the House of Commons, on Thursday la
King, the member for Somerset, North, wh
estimate of £40,000 for the Houses of Parl
came up, took occasion to criticise again the
that has been adopted of restoring the roof of
minster Hall. Reminding the House that the r
undoubtedly the most magnificent piece of ca
work in the world, and that it had been in existe
five hundred years, he contended that any prop
deal with it in a drastic way ought to have be
before the House and the public with greater
and that more opportunities for discussion and
cation should have been afforded. Sixty th
pounds is to be spent on the repairs, and no suc
had ever been undertaken before on Westminst
without a Committee of Parliament enquiring
He asked why none of the architects who ha
engaged in repairing the roofs of the great cat
of York, Winchester, Durham, or Canterbury ha
brought into consultation. Why had the Soci
the Protection of Ancient Buildings been refus
mission to visit the roof and view it at close qu
Referring to the report on "the ravages of the
and the moth" in the timbers of the roof, M
said, amidst inevitable laughter, that those
had been in recent years considerably accelera
the persistent removal of dust from the beams,
the prolongation of winter sittings in the H
Commons. What the beetle wanted was woo
not dust, and the dust that had been removed
cost of hundreds of pounds ought to have be
Then, the prolonged winter sittings had given
a great deal of aqueous vapour, causing conde
on all the walls and roofs, and on the timbers o
minster Hall, a condition that favoured the d
tions of the insects. He charged the Office of
with an act of vandalism with respect to th
From below it might look the same, but its Got
antiquarian character was gone for ever.

Mr. Beck, replying on behalf of the Office of
denied that there had been anything hurried
reptitious about the treatment of the roof of
minster Hall. Departing from the customa
official tone, he declared that the Office of Wo
not been guilty of sending housemaids to the
remove the dust. Bomb explosions in 1888 ha
that. Great experts had approved of the a
method of treating the roof; and Mr. Beck thou
strange suggestion that, instead of preserving
timbers, we should put up others like them

Of course the vote was agreed to; both atta

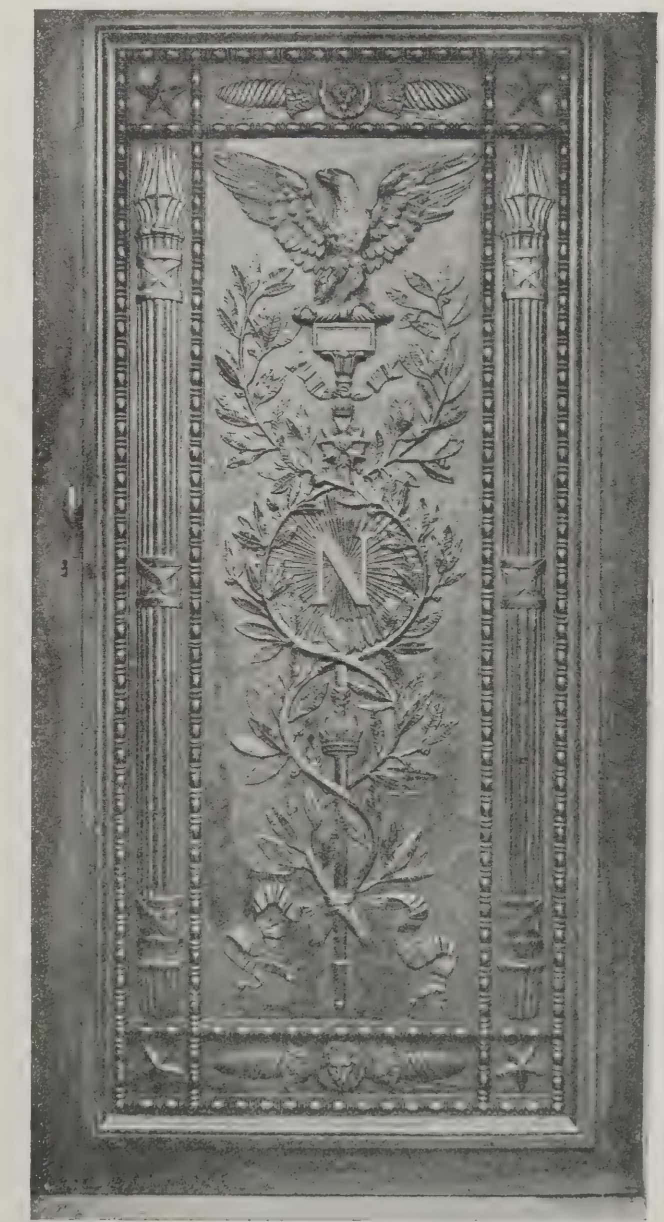
e having been more or less farcical and futile, for
nclusion of the whole matter was reached when,
ement with the opinion of Sir Aston Webb, Mr.
ıld Blomfield, and other eminent advisers, the
cf Works decided to adopt the scheme devised
F. Baines, M.V.O., for maintaining the stability
roof. Moreover, the work is now well in hand. A
ıctional drawing showing the proposed new steel
cement was reproduced in our issue for June 24,
vhere also the advantages of the scheme are thus
rised: (1) Steelwork designed so as not to pre-
seriously the appearance of the truss and the
l amenities of the structure; (2) steelwork ade-
not only to carry effectually the weight of the
, but to support each main member so that it can
d up where decayed; (3) steelwork designed so
great a thrusting stress is not transferred to the
(4) possibility of collapse in any of the trusses
be provided against.

interior dimensions of the hall are 239 ft. by
y 42 ft. high. The immense timber-framed roof
en esteemed as one of the finest existing
les of scientific construction in carpentry; its
aring being at the extremities of the great ribs,
abut against the side walls and rest upon
-six sculptured stone corbels. At half this
the timber arches spring from the stone spring-
; so that the upper half of the height of the
g is entirely of timber, unrivalled for its carved
On the hammerbeams are carved angels bear-
elds of the arms of Richard II. or Edward the
sor. The roof was extensively repaired in
1.

mpts have been made to show that the work of
ng the roof could have been carried out much
pensively by simply repairing the woodwork.
ırely in such a matter expense is negligible.
vas most eminently desirable was the preserva-
as much as possible of the fine old woodwork;
method adopted is the surest means of secur-
t object.

APOLEONIC WAR MEMORIALS.

ERY noteworthy article on the War Memorials
of the Napoleonic period is the chief feature of
'The Architectural Review" for April. Par-
y interesting is the detailed account of that
f all monumental arches, the Arc de Triomphe
oile at the summit of the Champs Elysées, Paris.
in and Raymond were the first architects for the
in 1805-6, but Chalgrin's strong personality
it impossible for Raymond to continue in
ration, and he retired from the appointment in
. Two designs with columns had been
ely decided upon. Chalgrin now determined
y out a third scheme, without columns; and
gh he met with serious opposition, and the period
tion dragged along, his persistency resulted in
sent masterpiece, which, however, the architect
live to see completed, Chalgrin having died on
y 20, 1811. His faithful pupil, Goust, continued
sign until he in turn, in the year 1828, was suc-
by others. Huyot had been appointed as the
ue of Goust, and when the latter retired he
ted to depart from Chalgrin's design, by pre-
a scheme for the addition of four engaged
s carrying attics; fortunately, however, the final
n was to adhere closely to Chalgrin's design.
was superseded by a commission of four archi-
ncluding Fontaine and Gisors. In 1830 the
vas stopped by the Revolution, but two years
as taken up again, this time under the direction
ıet, who completed the structure and designed
eme of decorations for the Fête d'Inauguration
7. Many fine illustrations of the great arch,
tails of the sculpture, are given in the "Review," while among the other illustrations to the article are two of the Column of the Grand Army at Boulogne. This imposing pillar, 173 ft. high, was begun in 1808 under the direction of two architects, De la Barre and Henry, but it was not completed until 1840. De la Barre was only responsible for the work in its preliminary stages, the task of detailing and finishing the structure having been achieved with much distinction by Henry. "The general effect of the monument is particularly successful on account of the study given to its setting, with the supporting lodges and railed enclosure that introduce the column to the platform on which it stands, and obviate an effect of startling abruptness which so often results when a vertical object is set in the midst of a public place without consideration of essential accessory features. The apportioning of the mouldings and the treatment of the ornament are alike highly original, and the cast-bronze door in the pedestal is one of the finest examples of its kind [see illustration below]. The French fully understand the value of mass in their monumental work, but they seldom make the mistake of leaving a structure comparatively naked, as Wyatt did when he executed the Duke of York's Column at the foot of Lower Regent Street. This is one of the faults inherent in contemporary English work, which future practice aided by experience of foreign examples should rectify."



BRONZE DOOR TO COLUMN OF THE GRAND ARMY, BOULOGNE. HENRY, ARCHITECT.

REINFORCED CONCRETE WATER TOWERS.

BY HUBERT HAUGHTON, M.C.I.

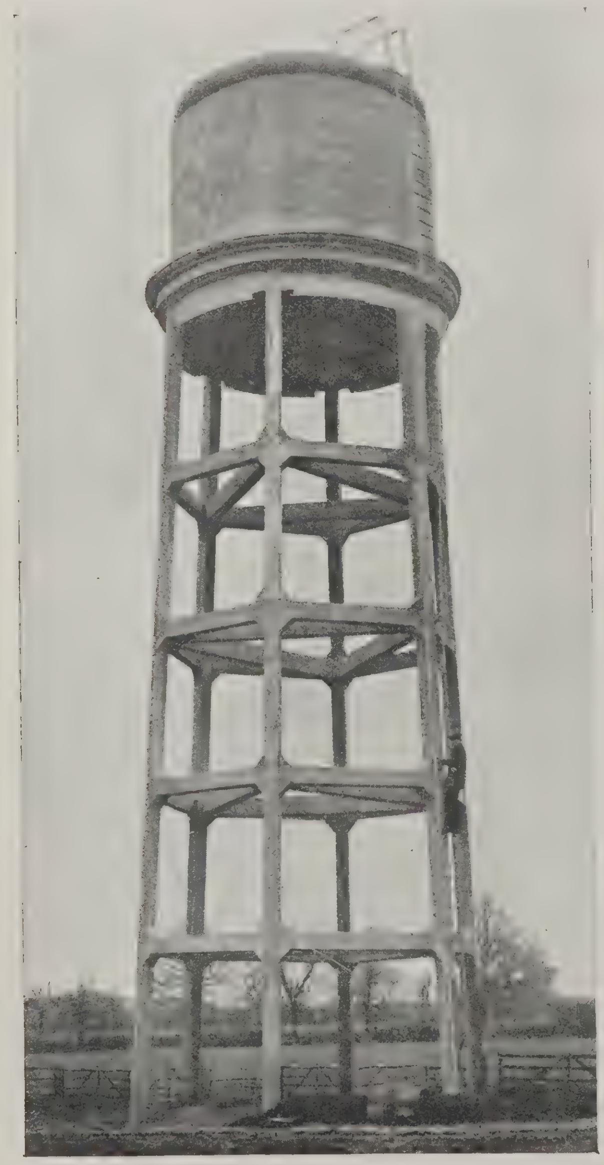
One of the most interesting uses for reinforced concrete is in the construction of elevated water tanks. This type of structure in reinforced concrete has to a large extent superseded tanks built of steel, or of cast iron supported on structural steel stanchions or on brick and masonry walls.

The marked advantages of reinforced concrete in this type of work lie in its economy of initial cost and subsequent maintenance, its durability, and its adaptability to architectural treatment. The last has in fact placed it in the front rank of materials for the construction of modern water towers. So far as the first two advantages are concerned, they have been always identified with reinforced concrete in structures of all kinds, but the last advantage is one which should receive due consideration in the matter of water towers, because they are generally erected in such prominent positions that they become veritable landmarks and should then present an agreeable appearance. The accompanying photographs show how admirably reinforced concrete meets this condition. The writer would again call attention to the fact that this pleasing appearance is obtained together with a great economy in the initial cost of construction.

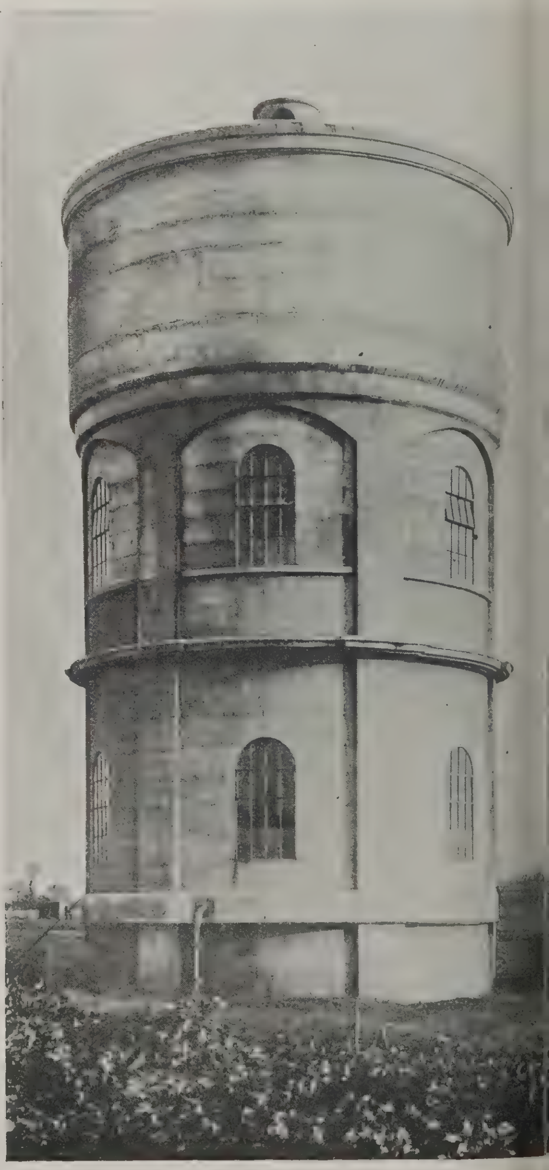
The general principles of the design of water towers in reinforced concrete are practically identical in all cases, in that they are elevated tanks supported by a number of columns braced together at suitable intervals. The design of the tank proper may be executed in various ways and the illustrations show several different types.

A notable water tower erected at York for the North-Eastern Railway Company was illustrated in the issue of this Journal for February 1, 1911. The tank has a capacity of 100,000 gallons. The height of the structure is 108 ft., and the tank, octagonal in plan, has an internal diameter of 32 ft. 4 in., with a depth of water of 21 ft. The bottom of the tank is a flat slab 7 in. thick, supported on reinforced-concrete lattice girders. The walls are 8 in. thick at the bottom reducing to 4 in. at the top and span between eight vertical buttresses, which are tied across in the bottom slab and in the roof slab. The latter is 4 in. thick, supported on secondary beams radiating from the main beams, which are carried on vertical buttresses at the outside, and on a 14-in. octagonal column at the centre of the tank. The eight external columns supporting the tank are 36 in. by 15 in. at the bottom, with 8-in. by 8-in. braces at about 12 ft. intervals.
The centre column is 21 in. octag
is braced to the outside column
same intervals. These latter bra
a 3-in. slab to form platforms
access ladder to the roof. The lad
through the centre of the tank an
tected by a cylindrical shaft with
hole on the roof. The work was
out to the requirements of Mr. C.
gough, the Chief Engineer of the
Division of the North-Eastern
Company.

The first illustration here given
water tower of 10,000-gallon
erected at Horwood House, Winsl
tank is 15 ft. 6 in. internal diam
is 9 ft. 9 in. deep. The bottom
shaped and is 15 ft. 6 in. span
2 ft. 6 in. rise; it consists of a sl
thick. The walls are 6 in. thick
port a dome-shaped roof 4 in. thic
tank proper is carried on a circul
supported on six reinforced
columns 10 in. square, braced
9 ft. 9 in. intervals with 12-in.
braces between the columns, and
lated at each bracing level with
9-in. cross bracing. The columns
reinforced concrete bases 5 ft.
which are all tied together
continuous beam 27 in. by 12 in.
care was taken in the design of the
and the bases to provide for the a
stresses due to wind pressure, w
assumed at 40 lb. per square foo



10,000-Gallon Water Tower, Horwood House, Winslow.



40,000-Gallon Water Tower, Lancing.

area. This pressure was reduced half on the circular portion of the ure. A wrought iron ladder fixed on itside of one of the columns gives to the tank. The tank was rendered inside with a ¾-in. thickness of t and sand, to which a small quan- Trus-Con waterproofing paste was to ensure the tank being watertight. rchitects for the tower were Messrs. r Blow and Billerey, FF.R.I.B.A.

second illustration is that of a water erected at Lancing for the London, on, and South Coast Railway Com- In this instance the tank has a ty of 40,000 gallons, with an internal er of 27 ft. and a depth of 13 ft. 6 in. ottom is in the shape of a dome 25 ft. ith a 4 ft. rise, and consists of a slab hick. The walls, 6 in. thick, sup- e dome-shaped roof, 27 ft.-span with rise. The roof slab is 4 in. thick s a lantern tower at the crown. The carried on an arched circular beam, is supported on six rectangular ns 36 in. by 9 in. The columns are enclosed by panel walls 4 in. thick, form the walls of the pump house at ound level.

third illustration shows a water erected at St. Albans for the St. Water Company. It has a capa- 80,000 gallons and was carried out the instructions of Mr. Arthur F. s, M.I.C.E., Caxton House, Westminster, the consulting engineer to the company.

The fourth illustration is that of a water tower erected at York, on Severus Hill, for the York Waterworks Company. The construction is interesting on account of the fact that it is probably the largest reinforced-concrete water tower in the British Empire, when its height is taken into consideration. It has a capacity of 300,000 gallons. The general arrangement of this tank was described at length in the May issue of "Kahncrete Engineering."

Many other similar towers could be illustrated, not the least interesting of which is that at present being constructed by the Joint Waterworks of Welwyn and Dachworth to the requirements of Mr. F. E. Tudor, A.M.I.C.E., of St. Albans, the consulting engineer to the joint boards.

Although the design of water towers is relatively simple, there are several elementary but salient features which must be taken into consideration. In structures of this character it is not advisable to stress the steel in a circular tank to the same extent that one would ordinarily do in an every-day construction. It is quite customary to stress reinforcing steel to the extent of 17,000 lb. per square inch. In ordinary structures such a stress will not produce objectionable cracks, but when one is dealing with a circular tank the conditions are altered. In such an instance the total stretch on the reinforcing bars running round the circumference of the tank becomes quite appreciable and is apt to produce cracks which will prevent the tank being watertight. The tensile stress placed on the reinforcing steel in the case of water towers should vary between 10,000 lb. and 16,000 lb. per square inch, depending upon the position of the steel in the tank and the nature of the construction. The question as to the proper tensile stress to be placed on the reinforcing steel is one which can be best answered by the results of experience. The stress which is suitable in one instance will not prove suitable in another.

All the water towers here illustrated are typical examples of the great number which have been erected in this country on the Kahn system of reinforced concrete to the designs of The Trussed Concrete Steel Co., Ltd., who have had extensive experience in this class of work.

Probably in no other branch of engineering is it so inadvisable to allow structures to be erected to competitive designs. Competition in designing is not conducive to the securing of the most satisfactory results, because it is only natural that some specialists should be so anxious to procure the work that they might be tempted to make slight sacrifices by using stresses in the reinforcing steel which would give unsatisfactory results. Competition should not take place in the designing, but in the letting of the contract.

80,000-Gallon Water Tower, St. Albans.

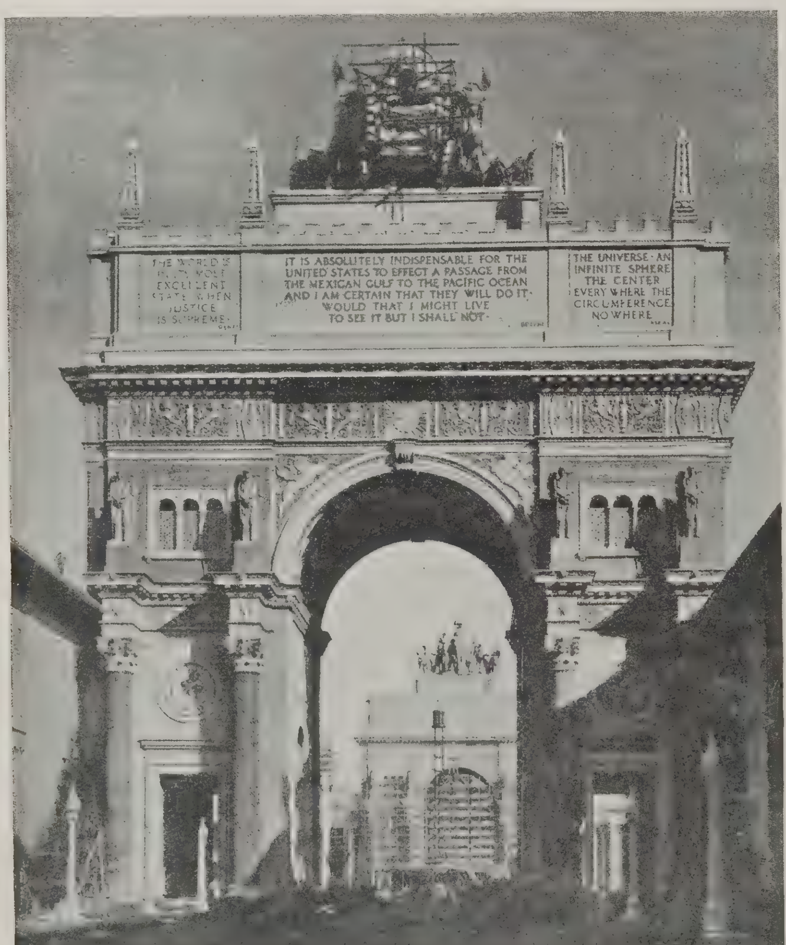
300,000-Gallon Water Tower, Severus Hill, York.

One design only should be prepared, with proper specifications and quantities, and that design should be placed in the hands of various contractors for tendering purposes. That is the only matter in which any competition should take place. Instead of a competition in design to discover the engineer who is willing to sail closest to the wind, the only competition should lie amongst contractors to discover who is able to organise his work to the best advantage, and to purchase his materials in the cheapest market.

It is the practice of The Trussed Concrete Steel Co., Ltd., to place the experience of their engineering staff entirely at the disposal of those who are contemplating the erection of reinforced-concrete water towers, and to co-operate with engineers who have work of this nature in hand.

ARCH AT PANAMA EXPOSITION.

Among the many striking constructions at the Panama-Pacific Exposition at San Francisco is the arch by Messrs. McKim, Mead, and White that spans the avenue between the Court of the Universe and the Court of the Four Seasons. As will be seen from the illustration below, it displays a curious mixture of many styles—Roman, Italian, French, Spanish—but the motifs are intermingled with great skill, and the result is very harmonious. The attic has some fine lettering cut into it, and many other parts are marked by that strong character which we are accustomed to associate with the work of the best-known firm of architects in America.


THE WORLD IS
EXCELLENT
STATE WHEN
JUSTICE
IS SUPREME
IT IS ABSOLUTELY INDISPENSABLE FOR THE UNITED STATES TO EFFECT A PASSAGE FROM THE MEXICAN GULF TO THE PACIFIC OCEAN AND I AM CERTAIN THAT THEY WILL DO IT. WOULD THAT I MIGHT LIVE TO SEE IT BUT I SHALL NOT.
THE UNIVERSE · AN INFINITE SPHERE THE CENTER EVERY WHERE THE CIRCUMFERENCE NOWHERE

ARCH AT PANAMA-PACIFIC EXPOSITION, SAN FRANCISCO.
McKIM, MEAD, AND WHITE, ARCHITECTS.

SOCIETIES AND INSTITUTIONS.

The Design of Structural Steelwork.

The last meeting of the session in connection with the Leicester and Leicestershire Society of Architects was held at the society's rooms in St. Martin's East, Mr. Charles Kempson presiding. The lecturer was Mr. W. E. Moore, who took as his subject, "Practical Considerations in the Design of Structural Steelwork." Mr. Moore dealt in very clear and instructive fashion with the various methods of construction used and the various types of foundations, stanchions, beams, and girders, roof trusses, and riveted and bolted connections. His remarks were illustrated by some excellent working drawings and cartoons. An interesting discussion followed, a hearty vote of thanks being accorded Mr. Moore, on the motion of Mr. Ellis, seconded by Mr. Richards. The president, Mr. Kempson, was thanked for the way he had fulfilled his duties during the year. A number of measured drawings and sketches of buildings of local interest were on view, including a number of drawings, lithographs, and watercolours by the late Mr. J. Flower, which illustrated some almost forgotten aspects of old Leicester.

Architects and Town-Planning.

At a meeting of the Nottingham and Derby Architectural Society held at St. James's Street, Nottingham, under the chairmanship of the president, Mr. Harry Gill, Mr. R. C. Stenson was elected an associate. The president introduced a discussion on town-planning, dealing more especially with the various legal p be considered. Mr. Pare, surveyo West Bridgford Urban District gave the meeting actual figures of t of roadmaking, which Mr. Calvert, tingham, supplemented. Mr.- then dealt with town-planning m ticularly from the architect's point and remarked that in his opinion it enormous cost of roadmaking acco bye-laws which influenced all sch housing reform. The frontage h sequently to be cut down to the na limits. He demonstrated by sketc diagrams suggestions for improv planning of small property, so as every room more day and sunligh interesting discussion took place i most of the members present took p at the close thanks were accorde president, Mr. Pare, Mr. Calvert, Bromley for the useful informati had given.

South Wales Institute of Arch

The annual general meeting of t Institute was held at the head High Street, Cardiff, when Mr. ning Moxham, the retiring preside a résumé of the work done in the during the year, which, conside effects of the great war, was encouraging.

Mr. George Vincent Evans, president, is a partner in the we firm of A. O. Evans, Williams, an of Pontypridd, who have carried important work, both in the ere buildings and in the development estates in the Rhondda and other

The following is a list of th elected officials: President, G. Evans, Licentiate R.I.B.A.; v dents: E. W. M. Corbett, F. F.S.I., and Ivor P. Jones, A. Council: Cecil L. Wilson, F. G. E. Halliday, F.S.A., F.R.I. Llewellin Smith, Licentiate Glendinning Moxham, F. Cholton James, F.R.I.B.A., H. Hiley, Licentiate R.I.B.A., David F.R.I.B.A., *T. E. Richards, A. *Percy Thomas, and W. C. Coop ciate Member). The asterisks si members of Council. Hon. T Harry Teather, F.R.I.B.A. Hon. C. H. Kempthorne, Licentiate Hon. Librarian, Lennox R F.R.I.B.A. Hon. Secretary, J. No. 1, St. John's Square, Cardiff.

Devon and Exeter Architectural

The annual meeting of this which embraces the counties of D Cornwall and is in alliance with t Institute of British Architects, on March 20 at the Centra Plymouth, under the chai of the president, Mr. J. Archibal F.R.I.B.A. (Exeter).

The annual report was present hon. secretary. This, together balance-sheet, was received and

The President referred to the Mr. R. H. Arthur, of Plymouth, for many years a member of th and a past member of the Counc

The President then delive address, for which, and for his duct in the chair, a vote of thanks posed by Mr. B. P. Shires, sec Mr. C. Cheverton and supporte J. Jerman.

The following officers and cou elected for the ensuing year: Mr Cheverton, M.S.A. (Devonport dent; Mr. L. F. Tonar, R.I.B.A. (Exeter), vice-president

(Exeter), hon. treasurer; Mr. Allan
, A.R.I.B.A., hon. secretary; and
J. Crocker, F.R.I.B.A., C. Cole,
and J. Jerman, F.R.I.B.A.
) to fill the vacancies on the
of those retiring, as well as those
ng in office, viz., Messrs. A. S.
F.R.I.B.A.; Harold Watts,
.A. (Plymouth), and A. J. Corne-
.S.A. (Truro), and the two past-
nts, Messrs. E. Coath Adams,
(Plymouth), and J. A. Lucas,
.A. (Exeter).

H STANDARD SPECIFICA- FOR PORTLAND CEMENT.

w edition of the British Standard
ation for Portland Cement, one of
st widely adopted of the reports
by the Engineering Standards
tee, has just appeared. The Sec-
Committee on Cement, presided
Sir William Matthews, K.C.M.G.,
med in 1903, and the first report
proved by the Main Engineering
ds Committee and issued in 1904.
ecification has been revised from
time with a view to improvement
uality of the cement, and the new
just published contains further im-
modifications.

ased fineness of grinding of cement
n legislated for, and the minimum
strength at seven days of both
nent and cement and sand has been
The clauses dealing with the pre-
of the briquettes have been ampli-
e procedure being described in
detail than has previously been the
In the case of both neat cement
es and cement-and-sand briquettes
g or hammering is expressly
ed.

rowth of tensile strength at twenty-
ays, both for neat cement and
and sand is now given in the form
rmula in place of the fixed per-
which have been specified
. While not making any material
ns to the figures previously laid
r the growth of the tensile strength
ty-eight days over that at seven
e formula gives a progressive in-
nstead of the somewhat irregular
the method previously adopted,
use in the test house lends itself
onstruction of a curve from which
king strength at twenty-eight days
nding to any ascertained breaking
at seven days could be easily read

the view of making easier the de-
tion of what constitutes a visible
on in the test for final setting
e Vicat needle for this test is pro-
ith a fixed metal circular cutting
half a millimetre back from the
s this length is sufficient to clear
n which sometimes forms on the
of the pat. The cement is con-
to be finally set when the needle
n impression on the pat and the
ent fails to do so.

e plates have been entirely re-
and two new plates have been
the specification, one dealing with
rd spatula for use in making up
ent-and-sand briquettes, and the
owing an improved form of specific
bottle which the committee have
d as suitable for use, though they
tipulate for its employment to the
n of any other pattern. Instruc-
r obtaining the specific gravity of
are given on the plate.

unications on the subject should
ressed to the Secretary of the Engineering Standards Committee, Mr. Leslie S. Robertson, M.Inst.C.E., 28, Victoria Street, Westminster. Messrs. Crosby Lockwood and Son, 7, Stationers' Hall Court, are the publishers.

NEWS ITEMS.

King's Cross Branch, L. and S.-W. Bank.

A new building for the London and South-Western Bank, Ltd., at King's Cross has been erected by Messrs. James Smith and Sons, Ltd., of South Norwood, under the supervision of Mr. Edward Gabriel, of Messrs. Edmeston and Gabriel, Architects, of 42, Old Broad Street, E.C.

Weights and Measures Tables.

The Central Translations Institute, Ltd., Danes Inn House, 261, Strand, are issuing in the form of a shilling card folder a set of tables showing the equivalent values of Russian and British weights, measures, and money. This table covers all ordinary commercial requirements, and includes the measures used in the building trades.

National Housing and Town Planning Council.

The Council of the Society of Architects have, at the invitation of the National Housing and Town Planning Council, appointed delegates to attend a series of conferences which are being held in London on April 20 and 21; Edinburgh, April 27 and 28; Liverpool, May 12 and 13; and Leeds, May 19 and 20.

Monument to an Aviator.

A monument is to be erected in memory of Dr. Emile Reymond, Senator of the Loire, and one of the boldest pioneers of aircraft in France. Dr. Reymond was mortally wounded in Lorraine some months ago while making a reconnaissance, but was able to make his report before he died. He had won distinction as a surgeon before devoting himself to aviation. The subscriptions already amount to between £300 and £400. The monument will be executed by the well-known sculptor, M. A. Bartholomé.

The Height of St. Paul's.

With respect to the recent discussion as to the exact height of St. Paul's Cathedral, in which the height, from the level of the Cathedral floor to the top of the cross, was given in figures varying from 340 ft. to 404 ft., or even more, Canon Alexander, the Treasurer of St. Paul's, has issued a statement to the effect that very careful measurements have just been made by the Cathedral staff showing that the height from the floor to the cross is 355 ft. 6 in. It should be remembered that the level of the Cathedral floor is several feet above the surrounding ground, and this, again, several feet above the level of the crypt.

New Theatre for the Academy of Dramatic Art.

A few days before Christmas, 1913, in a garden behind a couple of houses in Gower Street, close to Malet Street, Bloomsbury (the new street that runs northward from the main entrance of the British Museum's King Edward VII. Galleries), Lady Bancroft laid the foundation-stone of the theatre of the Academy of Dramatic Art, and the theatre is now finished. It has been designed by Mr. Geoffrey Norman (of Messrs. Swan and Norman). The building covers a space of 114 ft. by 552 ft. Of this space a portion, 42 ft. by 34 ft., is occupied by the stage, which is as big as that of the Duke of York's Theatre and bigger than those of many London theatres. The auditorium is small; but Mr. Norman has very skilfully overcome the difficulty of designing a theatre in which everyone will look straight at the stage, while avoiding the angular, box-like appearance that makes some modern English theatres so depressing. The secret is partly the sweeping curves of the single gallery; and, when the roof has its curved plaster arch, the effect of angularity will be further obviated. The stage being flat, the parterre is sharply raked; and the rake of the "circle" leads up to a pair of boxes at the back, whence the students' judges or other critics can tell the effect of their acting at a distance. One of the most inviting things about the building is its plain but well-conceived brick front on Malet Street.

Suspension of Work on School Buildings.

The Board of Education, on April 8, issued a circular calling the attention of local education authorities to the Treasury restrictions on borrowing, and to the necessity of economising labour. The Board suggest that while work on the provision and improvement of school buildings will have to be postponed, certain measures should be taken during the period of restriction to enable the postponed work to be resumed after the restrictions are removed, with the least possible delay. The Board also say that, in view of present circumstances, it may prove necessary for them for a time to acquiesce in the continuance of unsatisfactory conditions which in normal times would call for speedy removal.

A Military Hospital at Highgate.

A hospital for officers which has been established under the patronage of Queen Alexandra and bears her name, has been opened in Millfield Lane, Highgate. The hospital consists of temporary wooden buildings adjoining Brookfield House, which serves as an approach to them and as quarters for the staff. The patients' buildings have the advantage of having been expressly constructed for the use for which they are now intended, and the aim has been to embody in them the best results of experience gained since the opening of the war. Each of the twenty patients for whom accommodation is provided has a room to himself, and each room opens on to a broad balcony where they can be wheeled straight out into the open air. The hospital, besides an operating theatre, has an X-ray department and sterilising rooms. The plans, which were drawn up without fee by Mr. C. W. Ferrier, have cost £5,000 to carry out.

The Proposed St. Paul's Bridge.

In the claim of Messrs. Lever Bros., Limited, Port Sunlight, Cheshire, against the Corporation of London for £230,000 in respect of the acquisition by the Corporation of the Sunlight Wharf, Upper Thames Street, E.C., for the purposes of the St. Paul's Bridge, a settlement has been reached on the following lines:—Messrs. Lever Bros. are to remain in permanent possession of that portion of the land first built upon by them. Of the remainder they are to remain in possession until the contractors for the bridge works shall give them three months' notice. Upon the completion of the bridge works the Corporation undertakes to grant a lease for eighty years of the first-mentioned land, together with a certain defined portion of the last-mentioned, and a space under three arches of the new bridge at a rent of £1,943. The claimants have agreed to erect on the new land to be leased a building similar to the existing buildings to a specified height, and the Corporation have agreed to pay the cost of the buildings up to £40,000. The new buildings are to have a frontage on the new bridge road, any ornamentation required by the Corporation to be executed at their expense. The Corporation has also agreed to pay Messrs. Lever Bros. £47,500 for the disturbance to their business.

Road Board Grants.

During January, February, and March the Road Board indicated additional advances to highway authorities amounting in the aggregate to £80,143, of which £71,449 was by way of grant and £8,694 by way of loan. The advances made and indicated up to March 31, 1915, less indications cancelled, amount to £6,034,447. Of this total, £4,580,034 is by way of grant and £1,454,413 by way of loan.

The formal grants completed, with the approval of the Treasury, during the last quarter, amounting to £190,852, were applied as follows:—

Road crust improvements, £132,363; road widenings and improvement of curves and corners, £30,720; road diversions, £2,412; reconstruction and improvement of bridges, £1,450; new roads and bridges, £23,907.

COMPETITIONS.

Police Buildings and Fire Station, St. Helens.

In this competition the awards of the assessor, Mr. Aubrey Thomas, of Liverpool, are announced as follow: 1, Mr. Joseph Sunlight, Manchester; 2, Messrs. Cleland and Hayward, Wolverhampton; 3, Messrs. C. T. Adshead and P. H. Topham, Manchester. Competitors may inspect the designs in the assembly room at the Town Hall, on April 29 and 30 and May 1, and thereafter the public will be admitted.

Whitehaven Housing Scheme.

The Council of the Society of Architects have received a letter from the Town Clerk of Whitehaven, dated March 30, to the effect that the Housing Committee have decided to appoint a duly qualified architect to act with the borough surveyor in adjudicating upon the designs sent in, and that they have also decided to extend the time to which designs will be received to May 10 next. Further, the Housing Committee intend to appoint the successful designer as the architect unless there is some objection to this course. In these circumstances the Council of the Society have withdrawn their intimation to members relating to the negotiations between the society and the promoters.

New Elementary School, Middlesbrough.

Professor J. W. Simpson, F.R.I.B.A., the assessor in the competition for the "William Fallows Council School," made the following award: Placed first, design No. 13; second, No. 5; third, No. 2. At a meeting of the Town Council it was found that the authors of these designs were: No. 13, Mr. James Forbes, Lic.R.I.B.A.; No. 5, Messrs. Kitching and Lee: No. 2, Mr. A. Forrester (all of Middlesbrough). The cost of the building is estimated at £19,800.

LIST OF COMPETITIONS OPEN.

APRIL 30. — GRAMMAR SCHOOL, LEICESTER. — The Corporation invite designs for the new Wyggeston Grammar School for Boys to be erected on a site next Regent Road. Competition limited to architects practising in Leicester. Premiums £100, £70, and £50. Assessor, Mr. George H. Widdows, F.R.I.B.A.

MAY 10.—HOUSING, WHITEHAVEN.—Corporation invite designs for laying-out site and erection of houses. Author of design placed first to be employed as architect, or otherwise to receive 30 guineas premium; second premium, 20 guineas; third, 10 guineas. Conditions (£2 2s., returnable), The Borough Surveyor, Town Hall, Whitehaven. [See note above.]

MAY 31. — LAYING-OUT GROUNDS OF UNIVERSITY OF WESTERN AUSTRALIA.—Designs are invited for the laying-out of the grounds at Crawley, Perth, Western Australia. Premiums, first, 100 guineas; second, 25 guineas. Drawings must reach the Registrar, University of Perth, not later than May 31. Documents relating to the competition may be seen at the offices of the Agent-General for Western Australia, Savoy House, Strand, W.C. For particulars, see our issue of March 17, p. xiv.

NO DATE.—MUNICIPAL BUILDINGS, STEPNEY.—Designs are invited by Stepney Borough Council for new municipal buildings. Particulars from Mr. G. W. Clarke, Town Clerk, 15, Great Alie Street, Whitechapel, E.

NO DATE.—SMALL HOSPITAL, WHITEHAVEN.—Designs are invited by Galemire Joint Hospital Committee for a small hospital. Apply Mr. E. B. Croasdell, Union Hall, Whitehaven.

NO DATE.—COTTAGES, CHESHIRE.—Designs for cottages on the Bromborough Estate, Cheshire, are invited by Messrs. Lever Brothers. Particulars of the nine premiums offered were given in our issue of March 17, p. xiv.

SPECIAL LEGAL REPORTS.

Alleged Defective Pavement.

Horridge v. Makinson.

April 15. King's Bench Division. Before Justices Bailhache and Shearman.

This was an appeal by the plaintiff from a judgment of Judge Spencer Hogg, of the Wigan County Court, in an action which she brought against the defendant to recover damages for personal injuries sustained by her being tripped up on the pavement outside the house owned and occupied by the defendant at Hindley. It appeared that some years ago the local authority decided to raise the level of the pavement outside his house under the powers given to them by the Private Streets Works Act, 1892. There was a coal shoot outside the defendant's house on the level of the old pavement, and a flagstone or two were left out of the paving at the time in order not to shut out access to the coal shoot. Whilst plaintiff was passing along the spot she tripped in the hole left and sustained an injury and sued the defendant for damages. At the hearing before the County Court Judge, his honour non-suited the plaintiff and she now appealed from that judgment.

Mr. Langdon, K.C., argued the case for the appellant, and Mr. G. Jordan for the respondent.

Mr. Langdon contended that the defendant had permitted the nuisance and that, upon the authority of the decided cases, the defendant was liable.

Mr. Jordan submitted that there was no liability on his client.

The Court dismissed the appeal.

Mr. Justice Bailhache, in giving judgment, admitted that if a person, the occupier of land which adjoined a highway, allowed his land to become a nuis
was responsible for any harm th
pened to a person using the h
although he had not created the n
provided that he knew of it and
remedy it. But there was no du
frontager to keep in repair a
which had been taken over by t
authority. Not only was there no c
there was no power in the frontag
any repair to the highway. It was
that the distinction was therefore
a nuisance in the highway itself
land adjoining a highway. In the
case the nuisance was in the high
in these circumstances the Count
Judge arrived at a right conclusion

Mr. Justice Shearman concurred

What are Structural Repairs

Preston v. Ludlow-Bruges

March 12. Official Referee's Court. B
Pollock.

This action involved a novel qu
affecting the relationship betwee
and lessor in regard to structural
The amount in dispute was £70

Mr. Hugo Young, K.C., and M
tello appeared for the plaintiff,
Acland, K.C., and Mr. Rickets
defendant.

Mr. Hugo Young said in Februa
Mrs. Lizette Henrietta Ludlow-B
Sandridge, Bromham, Wilts, gr
Mr. W. R. Preston a twenty-o
lease of Seerd Park, near De
estate which consisted of a mansi
and about 20 acres of land. By
the landlady entered into cove
maintain the structural portion of
ion in repair, and the lessee, on
undertook to do all the minor rep
plaintiff said that the lessor had
perform her part by neglecting
tain the roof of the house, as a
which he had suffered damage a
venience, and had had to pay fo
pairs himself. There was a coun
by the defendant for breaches of

In support of the plaintiff's case
was called as to the cost of the r
the roof which had been done
plaintiff, although, under the
the lease, it was the duty of
fendant to have done them.

Mr. Acland, for the defendan
the question as to what cons
structure. His contention was
roof was not part of the structure
therefore the tenant was liable to
good. The structure, he argu
merely that part of the building
the roof was supported.

The Referee: Do you contend
covering is not part of the structu

Mr. Acland: The slates or tiles
The obligation is that the defenda
maintain the supporting part of
and leave it to the tenant to do
necessary to keep the water out.
maintain the structure, such as
the beginning of 1910, at which ti
a roof over 100 years old.

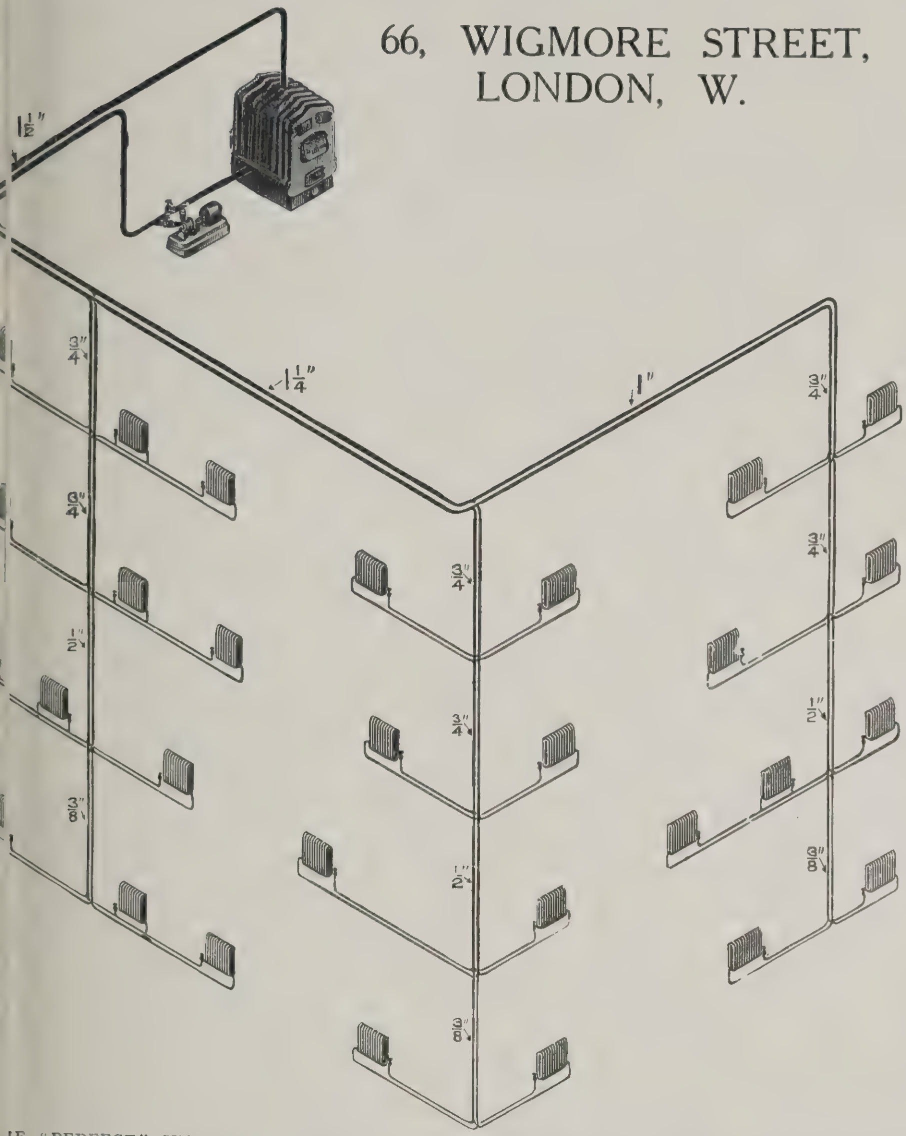
Evidence was given in relatio
alleged breach of covenant by the

Mr. Hugo Young dealt with the
of what constituted the struct
roof, observing that one migh
contend that the crust was no p
apple pie as that the slates were
of the structure of a roof.

The Referee, in a reserved
delivered on March 23, held that
ture included the roof and the s
tiles, and that the defendant w
for their repair. Judgment fo
on the claim, for £68, with costs
the defendant on the counterclai
costs.

BENHAM & SONS, Ltd.,

66, WIGMORE STREET,
LONDON, W.



IE "PERFECT" SYSTEM OF HEATING BY ACCELERATED LOW PRESSURE HOT WATER—BY MEANS OF SMALL PIPES RUN IRRESPECTIVE OF LEVELS.

Recent Installations of Benham's "Perfect" System of Heating include:

CHURCH MISSIONARY SOCIETY, Salisbury Square.
Messrs. Seth Smith & Monro, *Architects.*

CHALFONT COURT, Baker St. (flats), for the Metropolitan Railway Co.

SEAMEN'S HOSPITAL and SCHOOL of TROPICAL MEDICINE, Albert Docks, E.
Messrs. A. Marshall Mackenzie & Son., *Architects.*

OFFICES of L.B. and S.C. Rly., London Bridge.
C. L. Morgan, Esq., *Engineer.*

NEW PREMISES of DAIMLER MOTOR CO. (Hire Dept.), Store Street, Tottenham Court Road.
Messrs. Taperall, & Haase, *Architects.*

ADDITIONAL PREMISES of PRUDENTIAL ASSURANCE CO., Holborn, E.C.

OFFICES of the NORTH WESTERN RAILWAY, Lahore, India.

ALL SAINTS' CHURCH, Goodmayes.
P. K. Allen, Esq., *Architect.*

AVINGTON PARK, Alresford, for Sir John Shelley, Bart.
Messrs. Millar & Cox, *Architects.*

NEW HOUSE, Lympne, for Sir Philip Sassoon, Bart.
Messrs. Herbert Baker & Ernest Willmott, *Architects.*

GATEBURTON HALL, Lincs., for J. D. Sandars, Esq.
Messrs. Scorer & Gamble, *Architects.*

Etc., etc.

srs. BENHAM'S Cooking aratus is all manufactured in works at Wandsworth, S.W.

y claim that each fitting is the of its kind, and every effort een made to secure Durability, Economy, and Efficiency.

The Kitchen of 46, Grosvenor Street, W., showing Coal Range (French pattern), with Charcoal Grill, Plate Rack and Tiled Hood; Gas Hot Plate with Ovens under, Gas Roasting Oven, Gas Pastry Oven, central Wood Table with Steam Hot Closet at one end; Glazed Hood over Gas Fittings.
Architects, Messrs. Detmar Blow and Fernand Billerey.

ENHAM & SONS, Ltd., 66, Wigmore Street, LONDON, W.

PROJECTED NEW WORKS.

Isolation Hospital, Balby.

Doncaster Town Council have adopted plans and an estimate of £25,700, for a new isolation hospital, Balby.

Police Station, Jarrow.

The Durham County Council are to build a new police station and court-house at Jarrow.

Dock Repairs and New Church, Methil.

The new dock at Methil is to be closed shortly for extensive repairs, which it is estimated will cost £50,000.

Plans have been approved for the erection of a new church at Methil to accommodate 1,000 members. The funds are being supplied by the Baird Trust.

Hospital Extension, Jarrow.

Jarrow Town Council have decided to extend the administration block at the hospital, and to erect a porter's lodge.

Additions, Govan.

Govan School Board are to make additions to the Copland Road School. Mr. Samuel Preston, 151, Bath Street, Glasgow, is the architect.

School, Middlesbrough.

Middlesbrough Education Committee have adopted a plan (submitted in open competition) for a new school estimated to cost £19,800.

School, Hull.

The Hull City architect has been instructed to prepare plans and to advertise for tenders for additions at the Mersey Street Council School.

Housing, Limerick.

An enquiry has been held into the application by the Limerick Corporation for power to borrow £6,223, for the erection of thirty workmen's houses.

Motor Works, Shrewsbury.

Messrs. Alley and M'Lellan (Limited), of Glasgow, have taken ground in the vicinity of Shrewsbury, for the erection of motor works. The factory will begin with from 250 to 300 artisans, and it is expected will ultimately have 1,000 employees.

Housing, Clydebank.

Clydebank Dean of Guild Court have approved a housing scheme by Messrs. John Brown and Co. (Limited), shipbuilders, Clydebank, for the erection of eight tenements in Clyde Street, at an estimated cost of £14,000.

Enlargement, Chinley.

Plans prepared by Mr. C. Flint, Architect, Buxton, Derbyshire, for the enlargement of the High Peak Hospital at Chinley have been approved by the Hospital Committee. A new block for enteric fever patients, and two observation wards are to be added.

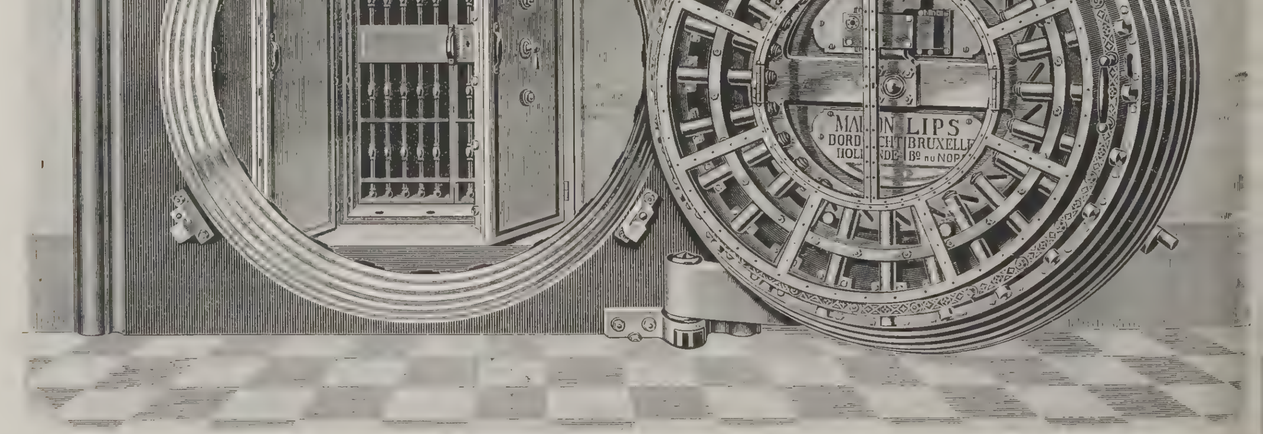
ARCHITECTS' VOLUNTEER TRAINING CORPS.

The Council of the Society of Architects, in response to an appeal for financial assistance from the committee of the Architects' Volunteer Training Corps, which now forms the 4th Battalion of the Central London Regiment (Volunteers), is sending the committee a donation of twenty-five guineas towards the Preliminary Expenses Fund. Major E. C. P. Monson (T.D.), president of the Society, has been gazetted sub-commandant of the corps, and will be glad to hear from any members of the Society who are not eligible for H.M. Forces and have not already joined any other Volunteer Corps, with a view to their joining the Architects' Corps. Major Monson served for twenty-two years as an officer in the Territorial Force, retiring some eighteen months ago from the City of London Regiment, Royal Fusiliers, with the rank of Major, which he had previously held for eight years. He has been honoured with the Territorial Decoration, and has the Volunteer Long Service Medal and King Edward's Coronation Medal.

TRADE AND CRAF

Strong Room Doors.

The more scientific methods o
now employed by the burglarious fr
have brought into notice the cra
door with screw-pressure mec
Although these doors have been in
some years in America and on t
tinent, but few of them are as y
found fitted to strong rooms i
Britain. These doors are mostly o
gular form, the door edges having
tiple step frame to fit into corres
steps in its seating in the door fra
final parallel motion afforded to t
by the crane-hinge and the screw-
mechanism enables the step fram
door and its seating to be broug
close contact. Of these rectangul
Messrs. Lips, Ltd., have supplied f
to strong rooms constructed by t
various banks in Belgium, Denma
land, Italy, Roumania, and Spa
they are, at the present time, fitt
of them (one provided with a ti
and both provided with combinati
but no key locks) to the large safe
and treasury they are at present co
ing in Buenos Aires for a Londo
Their latest type of crane-hinge do
multiple acute angle step frame an
pressure mechanism is their circul
illustrated below. Two of these
doors have been supplied by them
Banque de Reports in Brussels, on
Banco Espanol del Rio de la
Madrid, Spain, and one for the
Risparmio, Bologna, Italy.
architects and their consulting e
will recognise that this circular
strong-room door—like the circula
of a gun—enables the attainment
most perfect fit of the door in its
in the door-frame. Messrs. Lip
apply this crane-hinge and screw-
mechanism to their melting-proo
both in the rectangular and in the
form. Full particulars can be
from Messrs. Lips, Ltd., Kingsway
Kingsway, W.C.



CRANE-HINGE DOOR WITH SCREW-PRESSURE MECHANISM.

THE
ARCHITECTS' & BUILDERS'
JOURNAL.

Wednesday, April 28, 1915. Volume XLI. No. 1060.

No. 133.

(From Piranesi.)

THE ARCHITECTS' &
BUILDERS' JOURNAL.

APRIL 28, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1060.

EDITORIAL.

MOST opportune was the paper on the "Design and Construction of Industrial Buildings" which was read before the R.I.B.A. by Mr. Seagar Owen, of Liverpool, on April 19th. From the portion that is given elsewhere in the present issue it will be inferred that the author—who speaks from extensive experience in this class of work, at home and abroad, but who, as the architect of many other varieties of buildings, including churches, hospitals, schools, and innumerable residences, is peculiarly well qualified for a broad outlook—offers a good deal of practical advice that should be of the utmost value at the present moment, when the one great need of the country with respect to buildings is the rapid and efficient erection of a sufficient number of factories, warehouses, and business premises generally, to cope with the prospective expansion of industry consequent on the new conditions that have been and are being created by the war. This, indeed, is the only class of work (excepting, of course, that which is purely military) in which there are signs of anything more rapid than glacial movement, and Mr. Owen's expert advice on the subject will be welcomed alike by those who are already doing such work and by those who hope to get it to do.

* * * *

It was peculiarly appropriate that Sir William Lever, for whom Mr. Owen has designed many important buildings, should have been invited to propose the inevitable vote of thanks, and it is rather remarkable—or it would have been remarkable in almost anyone else—that he succeeded in turning so perfunctory an occasion to such excellent practical account. His opinion, as that of a business man of superb acumen, should carry more than ordinary weight, and it is therefore valuable to know that, according to his view, factories are being much too solidly built. Consequently too much capital is being sunk in them, to the detriment not only of economic production, but of industrial enterprise. Not only is the money expended a fixed charge on the output, but a too formidable estimate of the cost has on many occasions proved prohibitive to an incipient undertaking having in it the germs and promise of prosperity.

* * * *

It is possible that, as Sir William hinted, architects and builders may have become too much obsessed by fixed ideas on this subject, and may have gone on designing and building in accordance rather with prejudice and precedent than with specific requirements; and, what is of cardinal importance to the issue, they are, as the speaker did not fail to remark, maintained in this attitude by the restrictions imposed upon them by Procrustean by-laws which clog enterprise, suppres
ginality, and render inexpedient the imm
adoption of the newer methods and material
which architects, contractors, and building o
would be only too glad to avail themselves b
the official veto. When Sir William offered th
cellent advice that architects should speciali
various types of industrial buildings, it must
struck many of his hearers that it would be
necessary to convince the official mind of the re
ableness of this proposition, since the tenden
the authorities is to insist on one type, to the
fest restraint of trade as well as of ingenuit
invention. Architects and builders having exha
every form of protest in this matter, it would b
if, like Sir William Lever, other commercia
industrial leaders could be induced to enfor
present necessity for meeting more flexib
needs which have been brought into greater p
nence, as well as those which have been creat
the new industrial epoch upon which we ar
entering.

* * * *

St. James's, Piccadilly, which has recentl
into the papers on a charge of deviating fro
perpendicular, is certainly worth every effort t
it straight. Built by Wren in 1684, it is not a
rate example of his work, but that is har
fault. He would have provided it with a char
istic steeple, but his design for this was re
on the score of expense, a wretched substit
Wilcox, a carpenter, being adopted, at the c
a hundred pounds. Of the many slights pu
Wren in the course of his long and chequered
this was surely not the least annoying,
probably arose from the most common occas
them—parsimony; which, indeed, has been
ages the architect's chief bugbear. In c
building, especially, when it is found that the
are running low, or have not fully realise
justification of faith in the ability to collect
the architect's intentions are, almost as of
not, cruelly thwarted, and many a stinte
stunted steeple is a sorry symbol of tru
generosity and architectural heart-break.

* * * *

Such legends as "Proud Preston, poor
Pawned the church to build the steeple," or h
the doggerel may happen to run, seem to e
a natural surprise at the unusual accompli
of a fine steeple, and grave suspicion as to th
and means of paying for it. Too often the
tunate architect is persuaded of a solemn obl
to submit to the ruin of his design and to for
fees or abate upon them in a sacred cause. I

ss ductile to the appeal to their piety. They
n effective retort in respect of the merchant's
and the labour bill ; but they have often to
uch an interminable time for their money that
re in a position to agree with the architect
Ruskin never said a wiser thing than that
es should on no account enter upon the build-
churches and chapels unless they were
ed to pay for them without running into debt.

* * * *

n's lavish treatment of his interiors was a
nt menace to the perfection of his steeples,
eems to have been at St. James's, Piccadilly,
he employed Grinling Gibbons to do the font
ar carvings. Evelyn testifies that the reredos
e actual work of Gibbons. It is carved in
within a curved marble pediment, over a
of the Last Supper. The centre *motif* of
rving is a pelican with her young—our old
"the pelican in her piety"—and, as Mr. Albert
lock, A.R.I.B.A., has said in his introduction
fine album of plates by "Grinling Gibbons
s Compeers," "the particularly sharp nature
carving, and the truthfulness to detail, both
nd anatomical, are characteristic of this
work." This was apparently Gibbons's
ssay in the decoration of Wren's churches.
ad employed him in 1678 at Windsor Castle
e two chimneypieces in the Queen's Chamber
e King's Drawing-room, and the reredos at
nes's was begun a few years later.

* * * *

James's Church was built upon a portion of
ate of Henry Jermyn, Earl of St. Albans, who
ivately married to Henrietta Maria, the Queen
er, and it was consecrated on July 13, 1684.
cost of erection was only £7,000, Wren must
een hard put to it to keep within so narrow a
out, with all his mathematical ability—and,
way, a high development of this faculty is
ompatible with a sublime disregard for the
letails of simple arithmetic—Wren was fre-
at loggerheads with the purse-bearers, as
James's steeple could testify, and his vicis-
in this respect may be occasionally consoling
ct upon.

* * * *

ted as it is almost at the vortex of the
"movement," St. James's Church could not
ollect some of the sediment of history. Pitt
ristened in this church, and Gillray, the cari-
t was buried under its floor. Sidney Smith
ho had remarked upon the futility of scratch-
dome of St. Paul's in order to tickle the
nd Chapter—was no doubt frequently an
nt at St. James's Church while he was living
le Row ; but Sheridan and Grote, who also
ere, probably satisfied their consciences with
ng glance at the exterior, which must also
een familiar to Byron, George Canning,
Lytton, and Lord Macaulay, who dwelt in
any, where, indeed, Macaulay wrote his too
ly eloquent "History of England." For
ay the open-air pulpit would be in the fore-
of a long vista of scenic history. It would
o him, perhaps, the most famous example
utdoor pulpits, that designed so beautifully
atello for the wall of the cathedral of Prato
any.

* * * *

e announced some weeks ago, the workers
ondon building trades have demanded an
of twopence an hour, to meet the increased
living under war conditions. A joint meet-
iscuss the subject was held last Thursday,
when the Council of the London Master Builders' Association, finding themselves unable to agree to the workmen's proposal, were nevertheless willing to do what they could to effect the object with which it was professedly put forward. Realising from their own personal experience that living has become dearer, the employers made the very reasonable offer to extend the ordinary working time by five to ten hours per week.

* * * *

By this arrangement the workmen could earn enough money to meet the present contingencies. It is stated that this offer was refused—upon what grounds, rational or moral, it is difficult to understand, and the attitude of the workmen seems to suggest that they can have but a very imperfect perception of the obligations that are laid upon each and every member of a nation engaged in a life-and-death struggle for its very existence—that this is a supreme occasion for self-sacrifice, and that those who do not respond to it with cheerful alacrity, as the bulk of the nation is doing, are placing themselves in a very unenviable position. In being afforded the opportunity to earn more money at the sole expense of a little extra exertion, the workmen enjoy an advantage that is denied employers and professional men, who can only regard with pain and astonishment the apparent reluctance of the workmen to make so small a sacrifice as that which is implied in the opportunity that has been placed within their grasp. We feel that every effort should be made to enable the workmen to see this matter in its true light and proper perspective ; for it is inconceivable that, when once the real state of the case is distinctly revealed to them, they can persist in a course that, to say the least of it, is extremely unwise, impolitic, and most disastrously inopportune.

* * * *

An industrial museum which, as regards the fabric, is now nearing completion, and was begun before the war broke out, may, *ipso facto*, serve purposes that will exceed the imaginings of its originators. It is situated in the Horseferry Road, Westminster, and was destined, we understand, primarily for the exhibition of "safety appliances in use in mines and other departments of industry," including, no doubt, much apparatus relating to the building industry, such as sawguards and scaffolding. Even if it did not go beyond its original scope, this museum, which is being organised by the Home Office, would obviously possess considerable practical value, always supposing that it were kept up to date, and not allowed to lapse into the dull futility of a collection of antique curios. But the new conditions of industry that have been created by the war should greatly enlarge its opportunities for rendering real service to the community, and upon the success or failure to fulfil these wider functions will depend not only the justification of its own existence, but the prolificacy or sterility of the idea which it embodies. It should be the parent of many similar institutions, to be established in the provinces as well as in London, which, collectively, should cover the whole field of industrial and commercial activity.

* * * *

Interesting in itself, the museum—and we wish it could be called by some less musty name—gains manifold significance if we may regard it as a portent of the State guidance and assistance which we hope to see established as a well-organised and thoroughly complete system for the furtherance of the national welfare in the warfare that is never accomplished—the eternal struggle for commercial supremacy. Unless, in face of the keen rivalry which has already wrought such havoc with our manufactures, many of which have been killed outright, and many others crippled, by sheer organisation in foreign countries, and a plentiful lack of it in our own, and which is immediately to grow much more intense, we become scrupulously careful to get the utmost value from our resources, our complete success in the Great War must eventually go for naught. It is for this reason, and not without a side-glance at the truism that the arts of a country stand or fall with its commercial prosperity, that we so insistently urge the importance of a more thoroughly scientific mobilisation of our industrial forces. In the establishment of the new Industrial Museum, we would fain see a step towards that goal.

• • • •

But for the changed atmosphere which the war has created for us, Mr. Hinds, the member for West Carmarthenshire, would have brought a hornets' nest about his ears when, last week, he resuscitated the Regent Street Quadrant question. As it is, the matter seems to have excited no interest whatever, and Sir H. Verney's pronouncement on behalf of the Government has been allowed to pass unchallenged, in spite of its rather provocative character. It is to the effect that the Crown Surveyor is preparing amended designs for the completion of the rebuilding of the Quadrant, that the views of the Crown tenants are well known, and that "consideration is being given to all reasonable trading requirements." As our views on the subject are also well known, there is no need to reiterate them. They were not extreme, because we felt that to bring the architect into violent collosion with the shopkeeper was bad for both, and that some *via media* acceptable to both would have been possible and beneficial.

* * * *

In ordinary circumstances, or in normal times, it would be superfluous to commend the excellent work that is being done by the Architects' Benevolent Society, of which the annual meeting was held on April 20; but the war has altered everything, and in particular has had a twofold adverse effect on the funds of this society. It has slightly reduced the subscriptions and greatly increased the need for them. As this need is likely to grow, strenuous efforts must be made to keep pace with it; and because architects as a body have been so hard hit by the dearth of practice that many who under normal conditions would have contributed to the funds are now rather more likely to require assistance from them, it may possibly become desirable to widen the area of appeal, as well as to urge the more fortunate members of the profession to do their utmost in the interests of their distressed brethren, but the former course is not contemplated, and would be adopted, if at all, with extreme reluctance, not to say repugnance, and only in case of dire necessity.

* * * *

A long record of delicately exercised benevolence stands to the credit of the society, which was founded sixty-five years ago, and is, for architects, the only organised society of the kind in the kingdom. Its operations are various and interesting. It has its pensioners—architects (or their dependants) to whom old age has brought unmerited penury; it succours the widow and the orphan; it raises to *terra firma* those who, through no carelessness of their own, have slipped into the Slough of Despond; it sends to the Colonies the man who, seeking there an outlet for his energies, at once obtains betterment for himself and slightly relieves the congestion at home; and it does all that it can to find employment for those architects—assistants as well as principals—who are embarrassed for want of it. Its operations cover not only the entire kingdom, but one might safely say the whole Empire, and we may therefore be pardoned the suggestion that the geographical extent of its incomings should correspond to that of its outgoings. Communications should be sent to 9, Conduit Street, Hanover Square, London.

HERE AND THERE.

THE modern form of an old adage is, I b
"The hand that rocks the fountain-pen
hand that rules the world"; and having
belief of that kind at the back of their minds,
for the Press have kept steadily at their task;
far as the architectural and building journals ar
cerned it must be conceded that the illustration
always been the first source of interest to re
Quite recently a harmless if rather futile gener
cussion took place as to what sort of illustration
wanted, and I ventured to express my own vie
the subject. There is, however, a second qu
directly related to the first. It is, In what *for*
architects want their illustrations? Those by
this Journal is directed came to the conclusion a
two ago that nothing was so useful as a set of
page loose plates, presented as a regular series,
double-page plate for those subjects—like w
and measured drawings—which demanded rep
tion on as large a scale as possible. Most arc
have some special system of their own for filin
trations for future reference, and the publicat
separate plates of a handy size enables everyo
collate them in the way most convenient to h
It is on this account especially, no less than
merit of the subjects illustrated, that the plates
with this Journal have proved so popular. N
notice, "The Builder," abandoning its time-ho
custom, has followed suit; tentatively, a fortnig
with a couple of loose plates as harbingers of wh
to come, but last week full strong with six, acc
to the identical arrangement with which readers
Journal have become familiar. These are signs
times. "The Builder," as Whistler once sa
Nature, is "creeping up."

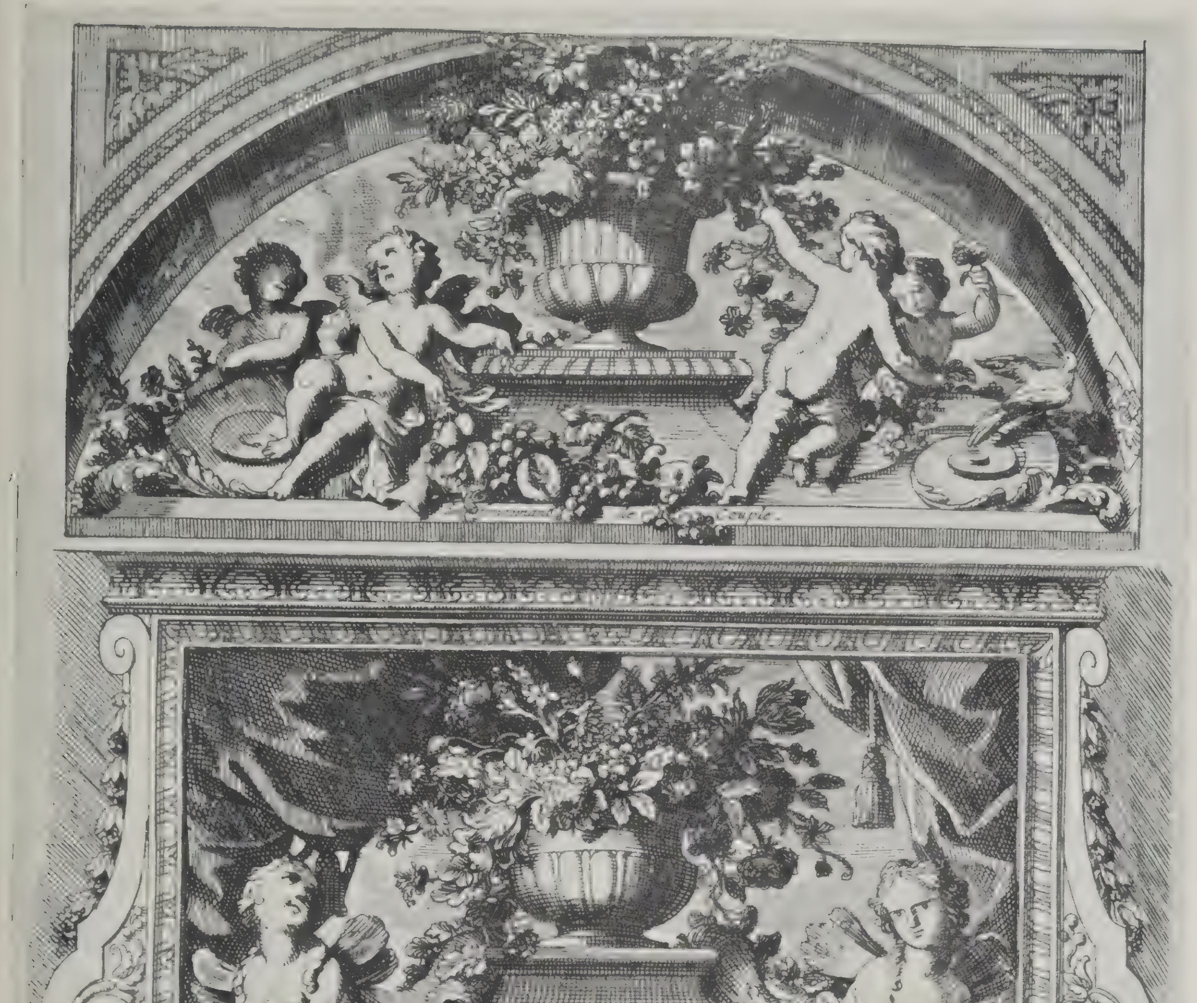
• • • •

Another injustice to the architect! That G
ment Department which rejoices in the stran
fearful duties of looking after Agricultur
Fisheries is now offering, for a shilling, sheets sh
elevations, plans, and sections of rural cottages
any jobbing builder can make use of, while for a
penny he can get the specification. Thus the
tect's lot, like Gilbert's policeman's, is not a hap
It requires, moreover, only a little imaginat
picture the time when, on the extension of th
practice by other Government Departments, E
astical Commissioners, Hospital and Asylum
and Mr. Selfridge, a full collection of working
ings, with specifications, might be bought like a
box of gardening tools. In the grain chandler
we see those neat sacks with a ticket stuck
mouth of each. Look on this picture, and on th
picture of the neat sacks full of attractive rolls
for use without any bothersome architect a
charges: Church plans, 1s. each—two for 1s
Suburban Residence, complete with garage,
Shop Premises, a good line, 9d. to 1s. 6d., accor
length of frontage. And in the same place a
the window, "Wanted, a good Strong Ar
University Man preferred, willing to act as
Labourer."

* * * *

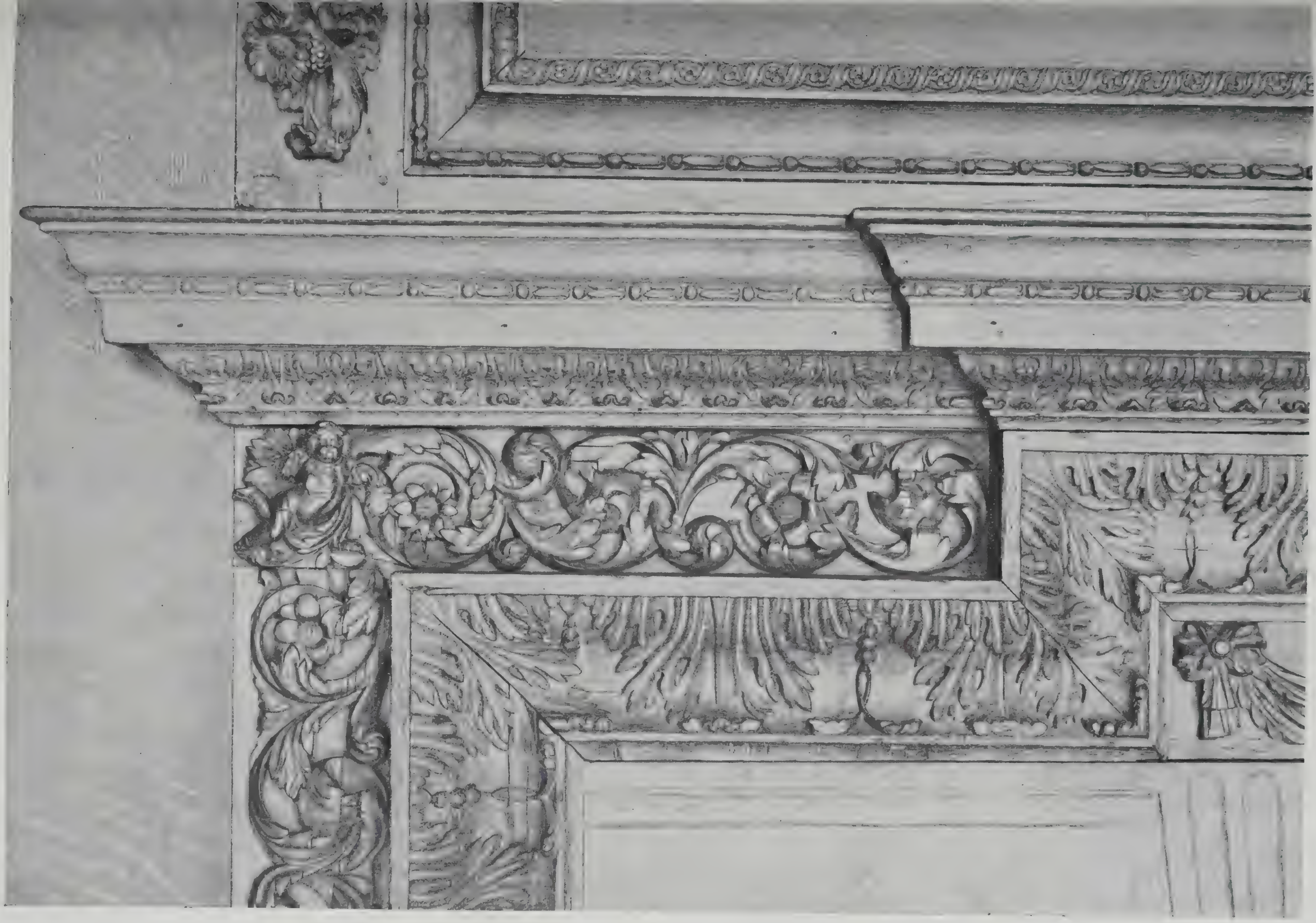
A friend explains to me the methods of a
when he settles down to design interior dec
He does it, apparently, to slow music in a da
room. He begins to see things; first dimly, the
clearly, and thus inspired he rushes to spla
scheme on to paper. The result is queer, w
not surprising, but it offers at least a definite
tion of that oft-debated theme the relation of r
architecture, and the asylum.

UB


Couple.
Dessus. de Porte.
Inventé et gravez par D. Marot.
Autres de Dessus de Porte.
avec Privilege.
66

DESIGNS BY DANIEL MAROT. VII.—OVERDOOR PANELS.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



DETAILS OF CRAFTSMANSHIP. XV. ENRICHMENT OF WOOD CHIMNEYPIECE FROM No. 3, CLIFFORD'S INN, NOW IN THE VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.

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OF THE
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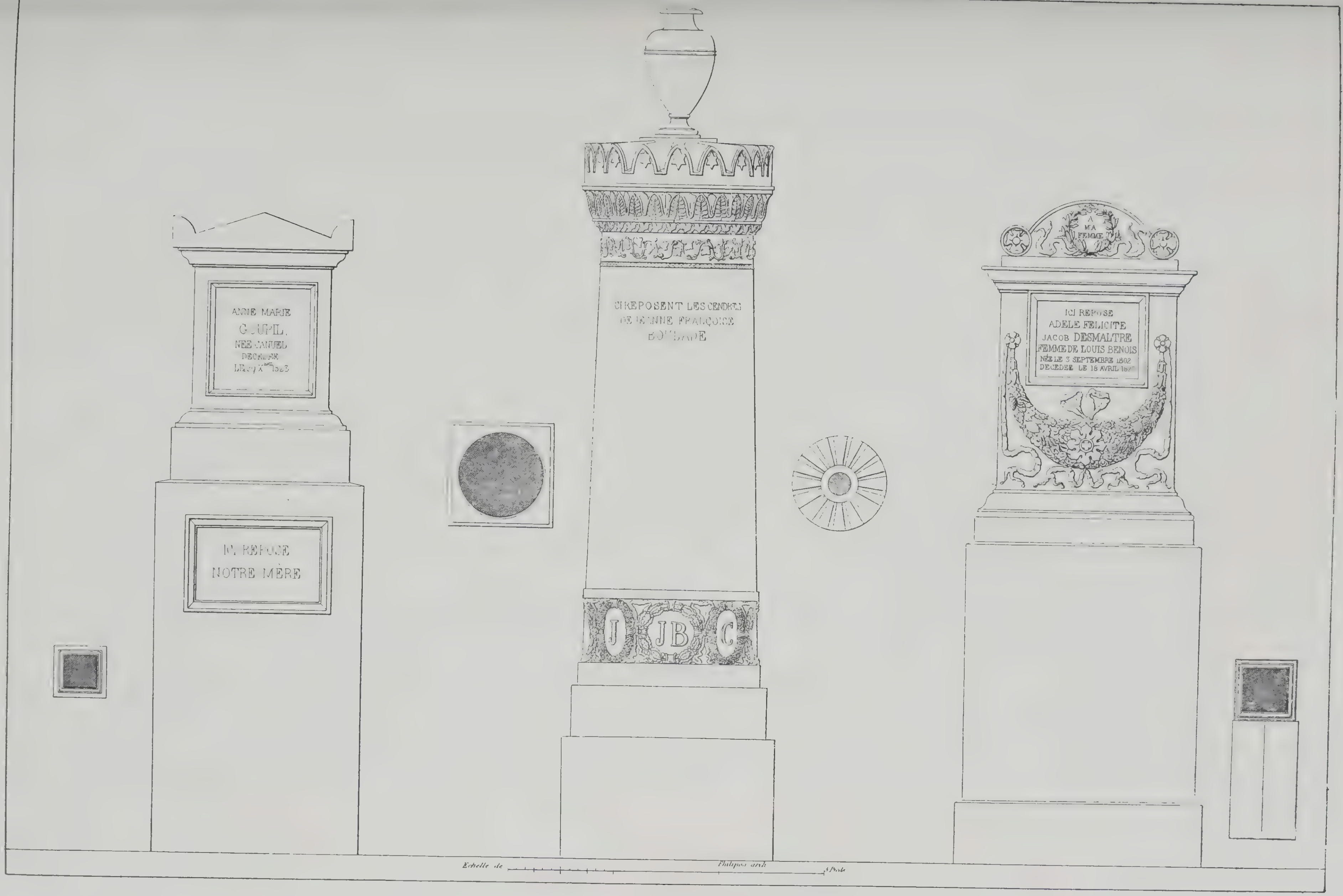

FRENCH MONUMENTS. XIV.—THREE MONUMENTS IN THE CEMETERY OF PÈRE LACHAISE. PARIS.

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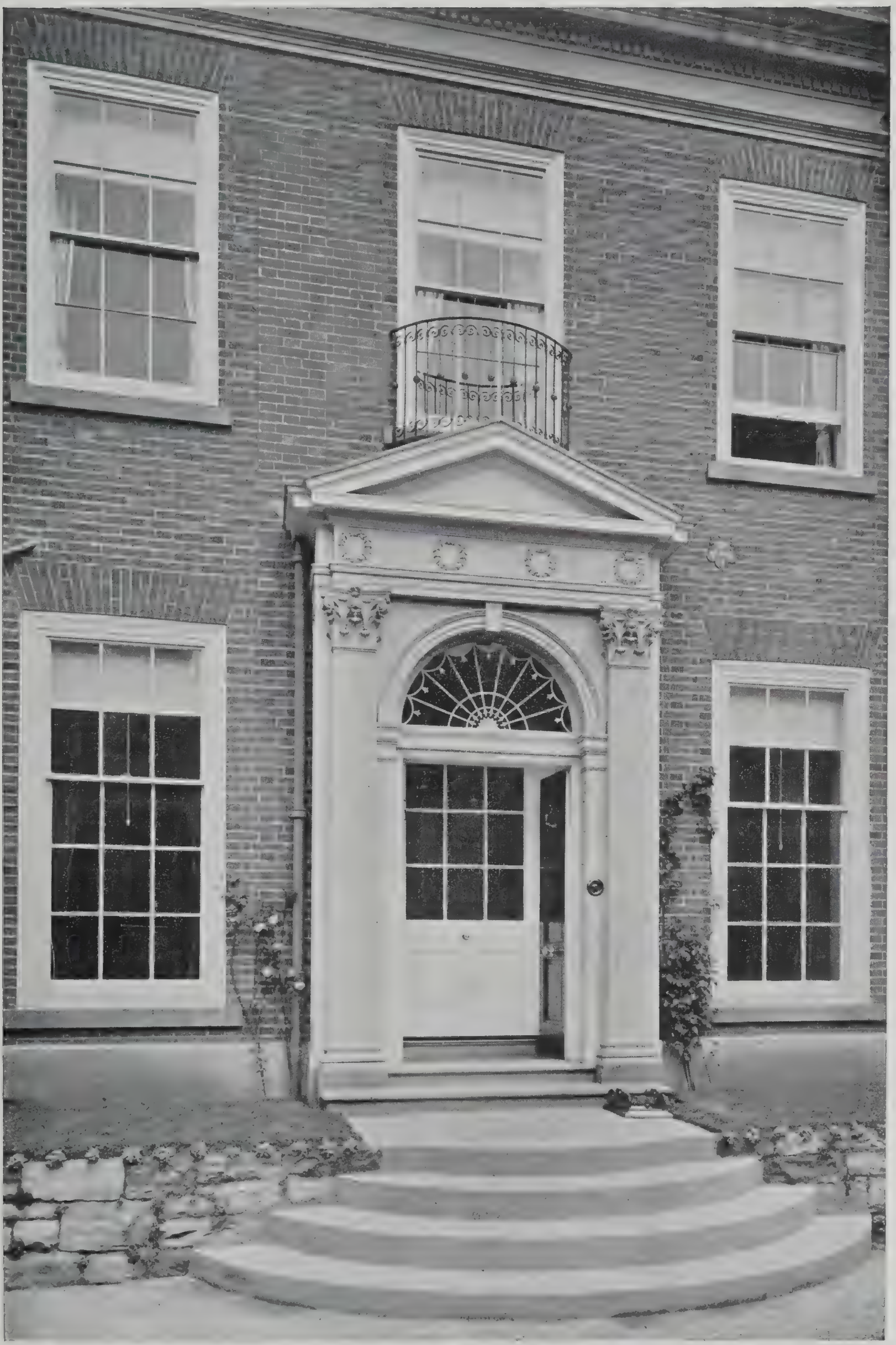

MODERN DOMESTIC ARCHITECTURE (SERIES II.). XII.—KERFIELD HOUSE, KNUTSFORD, CHESHIRE: DETAIL OF ENTRANCE FRONT.

PERCY SCOTT WORTHINGTON, M.A., F.R.I.B.A., ARCHITECT.

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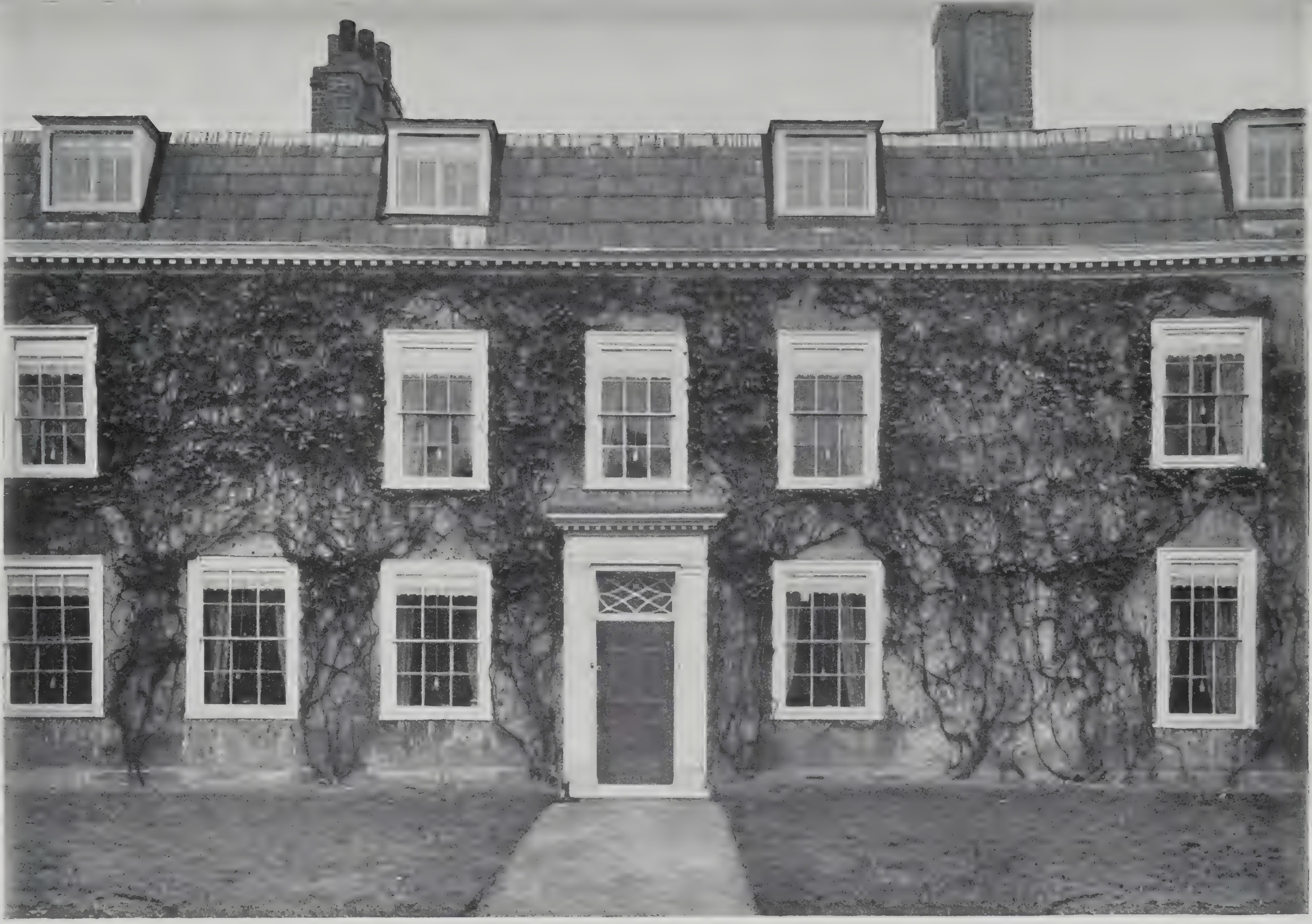

SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XLII.—MILBOURNE HOUSE, BARNES.

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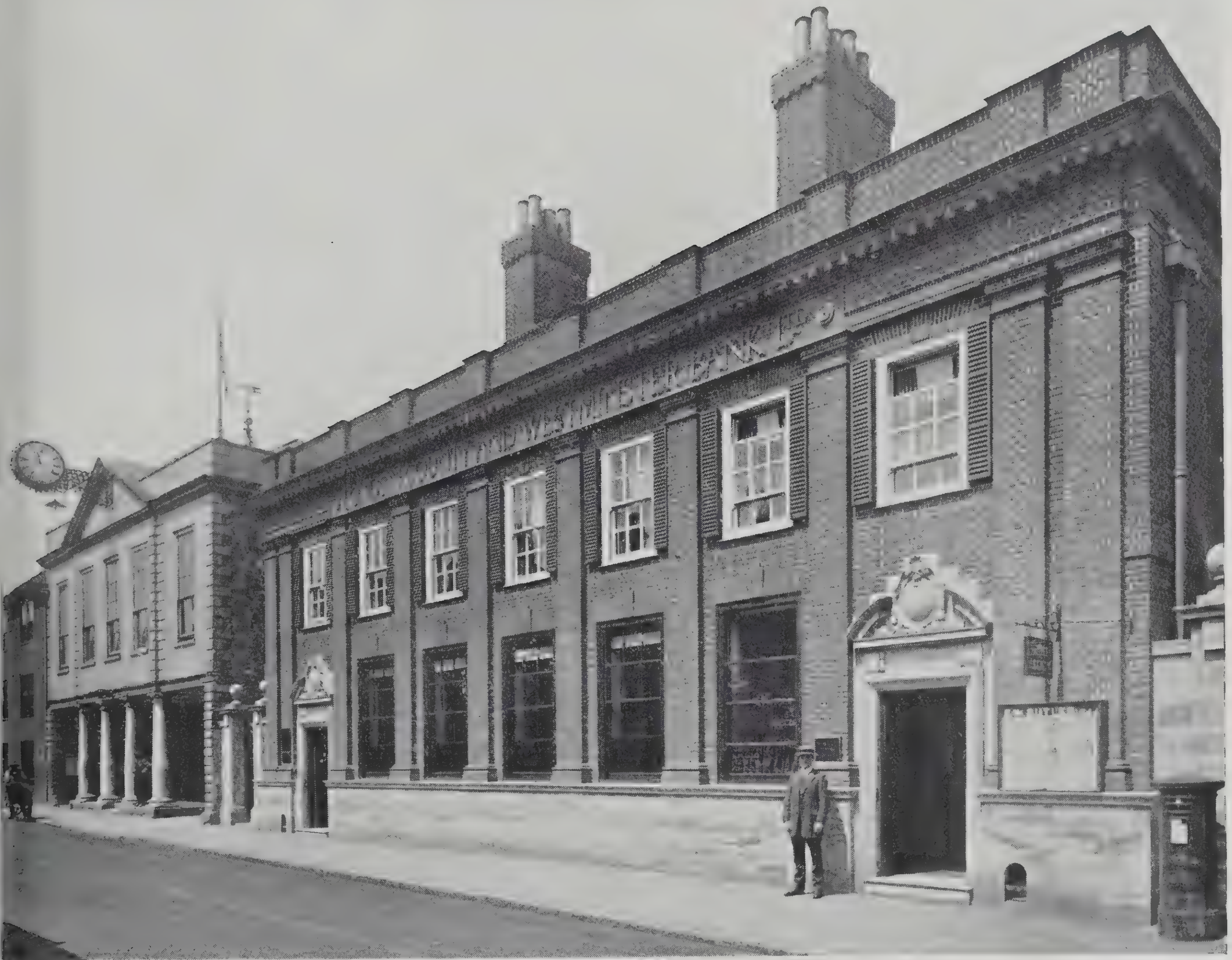
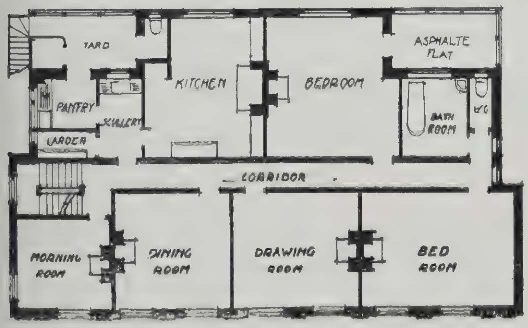
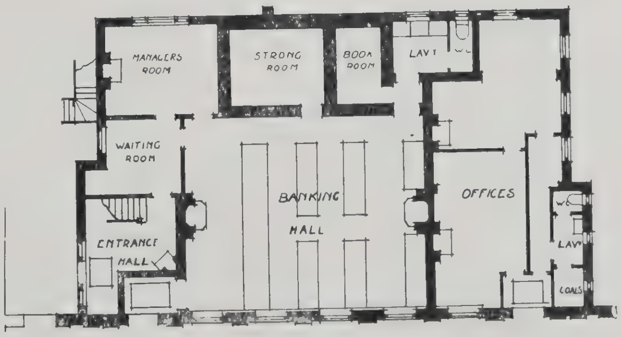




FIRST - FLOOR - PLAN:



GROUND - FLOOR - PLAN:

CURRENT ARCHITECTURE (SERIES II.). XVI.—LONDON COUNTY AND WESTMINSTER BANK, HYTHE, KENT.

BANISTER FLETCHER AND SONS, ARCHITECTS.

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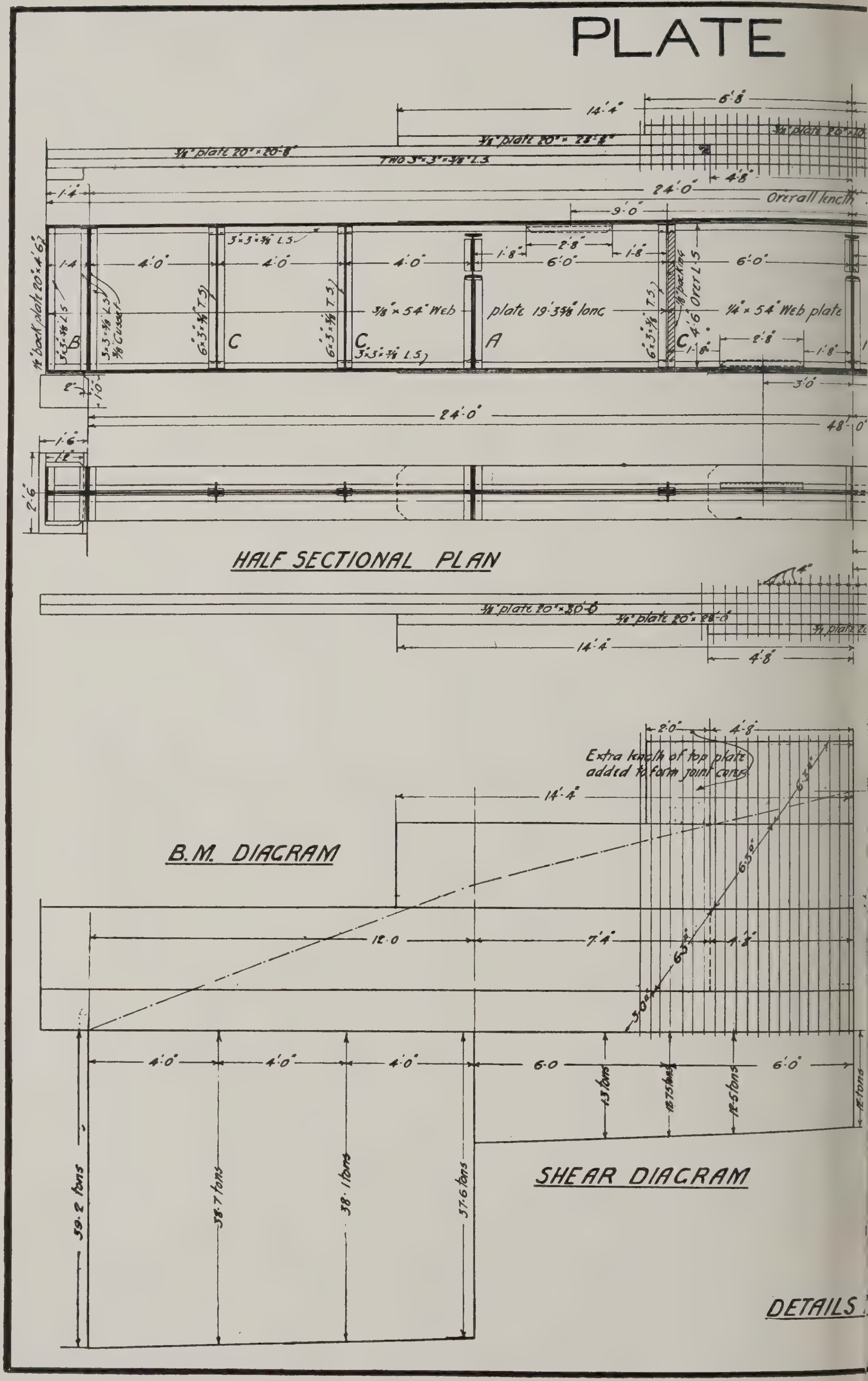
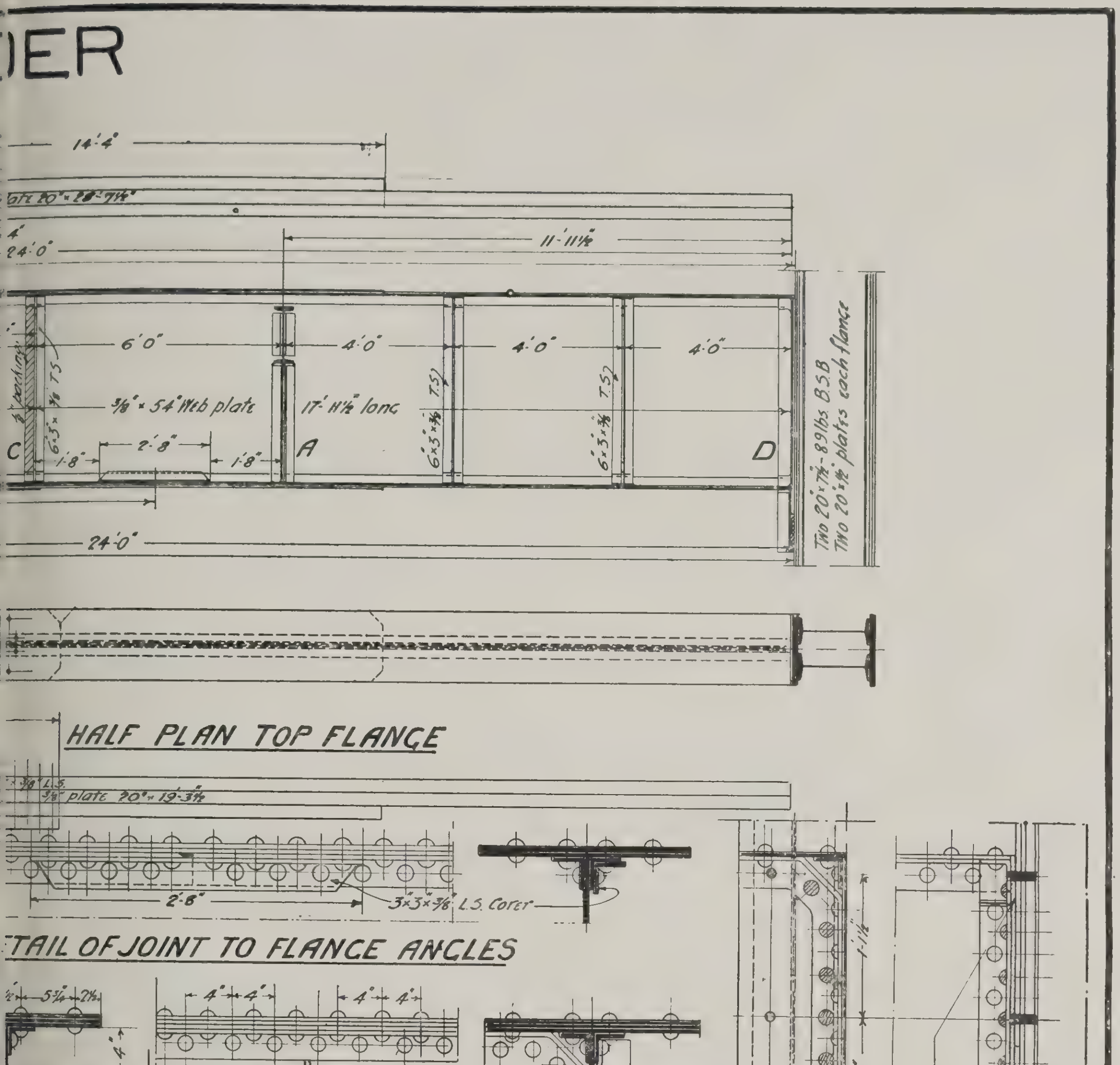


PLATE
14'4"
6'8"
3/8" plate 20"×20'8"
3/8" plate 20"×28'8"
TWO 3"×3"×3/8" L.S
1'4"
24'0"
4'8"
Overall length
9'0"
4'0"
6'0"
2'8"
1'8"
3"×3"×3/8" L.S
3/8"×54" Web
plate 19'3 3/8" long
1/4"×54" Web plate
B
C
A
3'0"
48'0"
1'6"
2'6"
HALF SECTIONAL PLAN
2'0"
Extra length of top plate added to form joint cover
B.M. DIAGRAM
12.0
7'4"
6.0
39.2 tons
38.7 tons
38.1 tons
37.6 tons
13 tons
12.75 tons
12.5 tons
12 tons
SHEAR DIAGRAM
DETAILS



-FRAME BUILDINGS.—II.

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THE PLATES.

Overdoor by Marot.

lready explained in connection with other lates in this series, Daniel Marot dealt with nterior decoration in a very complete , every part of his rooms being treated so t in harmoniously with the general scheme. tive paintings were a favourite device for richness to panels over doors and in chimney- and the three examples shown on the plate e what a fine effect can be gained by their n this particular Marot borrowed from the f Holland, where paintings have always been inent feature in interior decoration.

tail of Later Renaissance Chimneypiece.

woodwork of the room from No. 3, Clifford's .C., has been set up entire in the Victoria bert Museum, South Kensington. It is an nt example of the style adopted by Wren and owers. The room is from a house which was bout 1686 for John Penhallow, whose arms in the overmantel of the chimneypiece. The ork is of oak, richly carved with floral orna- n parts, as the illustration shows. It may noted that the Department of Woodwork has y issued a booklet on this room, comprising raphs and measured drawings, with a pre- note. It is the second of an official series, t having dealt with the room from the so- "Old Palace" at Bromley-by-Bow. The ts are remarkably cheap, being only sixpence

Monuments in Père Lachaise.

e three monuments are all of stone. The one—to Madame Boulade—shows what character can be given to even small monu- when the form is good and the ornament y applied. Within the wreaths which form ing band of ornament on the base are cut the letters of the principal members of Madame e's family. Philippon was the architect of nument.

rance Front, Kerfield House, Knutsford.

eld House is a reconstruction of an old house was altogether lacking in architectural dis- n. Under the direction of Mr. Percy Scott ngton, F.R.I.B.A., it was entirely rearranged and faced externally with Ruabon bricks a "dragged" face. Recesses were filled up, cences cut off, and windows and doors d, while the roof was hidden as much as e by a parapet. The main entrance comes in ntre of the façade, and is a very pleasant e of the modern treatment of the style which sociate with the name of Robert Adam and temporaries.

Milbourne House, Barnes.

is an old house, the front of which appears to om the last decade of the eighteenth century. It ts a long low front, with a refined doorway in tre and a delightful cornice, the windows having n bars characteristic of that period.

m County and Westminster Bank, Hythe.

se new banking premises have recently been l in the old High Street of Hythe, on the site old premises. The bank has a frontage of 90 ft., and comprises on the ground floor a central banking hall, 26 ft. by 32 ft., from the strongroom, manager's room, waiting and lavatory for the clerks are immediately ible. There is a private entrance for the er on one side of the entrance hall, from he has access to the bank through the waiting-room from his own private residence. The portion of the premises occupying the extreme east of the site has been designed for and is utilised as offices. The upper floors comprise the living rooms and bedrooms of the manager. At each end of the front are gates leading to the manager's private entrance and into the garden which occupies the whole space at the rear of the premises. The façade generally is of 2 in. bricks, cherry red being employed for the pilasters and plum-coloured bricks for the main walling. A feature in keeping with the local buildings is the provision of teak shutters to the first floor windows. The flues have been gathered into tower-shaped chimney stacks, and the roof is covered with green Westmorland slating in graduated courses. As the view shows, the premises occupy a somewhat picturesque position in relation to the Late Georgian Town Hall on the west and the old Parish Church on the heights beyond on the right hand. The architects were Messrs. Banister Fletcher and Sons, of London, E.C., the general contractors being Messrs. Dove Bros., of Islington.

Plate Girder.

This is dealt with in the article on page 203, where Mr. Percy Waldram discusses the relative economy of plate and compound girders, gives in full detail the methods of calculating moment of resistance, and explains very clearly the economic ratio of depth to span, the predetermination of weight of girder, the design of the web, its bearing area and end bays, the spacing of stiffeners and the design of stiffeners as posts, the design of flanges, the area of bearings of brick and stone, and the joints in flange plates and angles. This series of examples of structural design in steel-frame buildings is, we are pleased to be assured, finding much favour among architects and structural engineers.

CORRESPONDENCE.

The Cottage Committee's Report.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I am sorry that your issue of March 31 breathes so much indignation against the report of the Cottage Committee of the Board of Agriculture. On the general question of the propriety of disseminating information laboriously gained I need not touch, but need you support your case by suggesting that the Committee says that cottages can be built for a penny per cubic foot?

You may not agree with the Committee's methods or recommendations, but is it quite fair journalism to misinterpret the report? LAURENCE WEAVER.

[Mr. Weaver's insinuation of unfairness is purely gratuitous, and we feel sure that, on reconsideration, he would like to withdraw it. We stated explicitly that the price of one penny per foot was "fictitious," and that it was "set forth as a basis for further calculation": it is, in fact, so set forth in the circular issued by the Board. Moreover, we gave the Board full credit for its really valuable work in collecting and disseminating useful information. It is unfortunate that Mr. Weaver prefers to leave untouched the only point that really matters, which is that the Board in issuing cheap designs and specifications, is—of course quite unintentionally, but nevertheless mischievously — encouraging "public bodies, societies and persons interested in rural housing" to imagine that further architectural advice and assistance are unnecessary. That is the ground of our protest, to which, in the interests of the profession, we adhere.—EDS. A. AND B. J.]

A LIVERPOOL HOUSING COMPETITION.

[SPECIALLY CONTRIBUTED BY LIONEL B. BUDDEN, M.A., A.R.I.B.A.]

THE Liverpool Corporation invited architects to submit designs for dwellings for the working classes on the site shown in the accompanying sketch plan, Mr. Henry Hartley, F.R.I.B.A., being appointed assessor.

Briefly, the conditions of the competition were as follows: The accommodation to be provided was to include self-contained dwellings and two- and three-roomed tenements (the whole to house not fewer than 500 persons), an open recreation ground of approximately 1,400 superficial yards, a keeper's house, office, and store.

In the event of any competitor producing a scheme which would involve the closing of the east portion of Back Rathbone Street the remaining west part was to be connected with Rathbone Street. Rathbone Place might be closed, but Mount View was to be preserved.

Each set of drawings was required to comprise a block plan, giving site distribution, levels, drainage, etc., plans, sections, and elevation of each type of building to $\frac{1}{8}$ in. scale and one $\frac{1}{2}$ in. detail sheet. Premiums of £100, £50, and £25 respectively for the first, second, and third designs were offered.

Messrs. Biram and Fletcher (George Street, St. Helens) are the authors of the winning scheme. It is a compact and straightforward arrangement throughout. The blocks are so disposed that their frontages all face either Rathbone Street or Mount View. By the preservation of large open spaces at the rear of the blocks excellent lighting and ventilation are secured. With the exception of Mount View, slightly widened to obtain frontages for tenements on each side, the scheme is enclosed by private roadways giving direct approach to the tenement blocks and cottages. The former, arranged in seven groups, are designed on the balcony system in three-storey blocks of four tenements to each floor, with one central staircase to each block. From this central staircase archways admit to balconies giving access to the living rooms.

The recreation ground is planned as a single open space. Adjacent to it the keeper's house is placed for purposes of administration and supervision. There are in all 42 three-roomed tenements housing 252 persons, 42 two-roomed tenements, and 10 self-contained dwellings accommodating respectively 168 and 80 persons—a total of 500 persons altogether. Not including the suggested shops at the junction of Rathbone Street and Upper Duke Street, the cost of the buildings is estimated at £26,403. Brick and grey vitreous terra-cotta, with blue slates for the tenement roofs and tiles for those of the cottages, are the materials suggested.

Whilst there can be no doubt that Messrs. Biram and Fletcher's treatment of the area is most able, it is nevertheless open to criticism on certain points. It will be observed that the lowest buildings—the cottages, or self-contained dwellings—are placed fronting the largest open area, whilst three-storey tenements face each other across a 36 ft. road. As in the case of the designs placed second and third, no attempt has been made to increase the width of Rathbone Street, though its importance would seem to demand such treatment. Messrs. Biram and Fletcher's elevations are suburban in character.

A more civic composition is provided by the second premiated scheme, the work of Mr. F. E. G. Badger (Stoneycroft, Liverpool). The principal tenement blocks are placed on the higher ground towards Back Rathbone Street. Their wings are splayed, the angles being determined by the shape of the site towards its northern extremity. An adequate
screen is thus provided to the unsightly pr
abutting on to Back Rathbone Street. Two r
tion grounds are formed, one in front of each
All self-contained houses are grouped in three
rate blocks, facing Rathbone Street. Thes
flanked at each end by tenements. The
a symmetric composition of low masses, term
and backed by higher ones, is most satisfa
As the elevations (of brick with stone dressing
surmounted, in the case of the tenement
mansards) are designed in a simple Ge
manner—the Middle Period—the effect of the
is admirable. Front balconies are, happily, av
Excluding the comparatively small number of
ings proposed to be erected facing Mount V
whose retention was specifically required—a
dwellings are planned to have an east and
aspect, the best for this type of property. A
of 654 persons is provided for in 51 three-r
tenements, 63 two-roomed, and 12 self-con
dwellings. £24,650 is the estimated cost
buildings and £25,700 of the complete work.

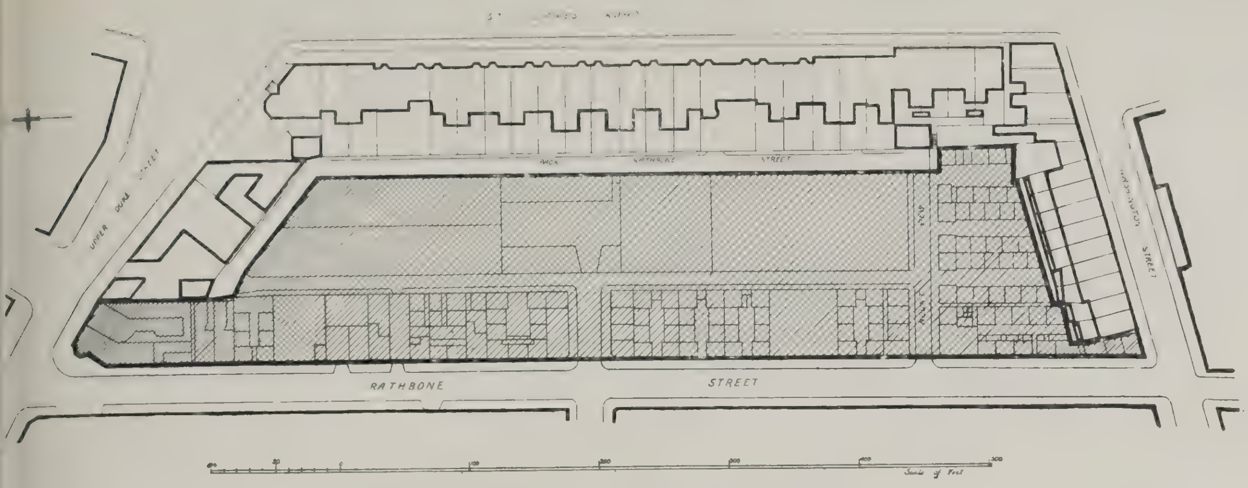
The design awarded the third premium h
same qualities of simplicity and directness
must have commended the first two t
assessor. Messrs. Halliday and Paterson a
Gustave Agate (joint architects, 14, John
Street, Manchester) have evolved a solution
whilst it embodies certain of the features
other premiated plans, is different from eith
single quadrangle is divided into two equal
and a new street carried round it. Overlooki
quadrangle on the western side of the site ten
are placed, and at the north and south sides. I
these low two-floored cottages are groupec
small open garden-space is created on the nor
of Mount View, giving a distance of 53 ft. b
the building lines. Altogether 29 two-room
53 three-roomed tenements are provided, to
with 15 self-contained dwellings, two shops
cottages attached), and one lock-up shop, the
at the Upper Duke Street end of the site
hundred and fifty-four persons can be housed.

In the elevations it has plainly been attem
achieve a treatment congruous with that of
Liverpool houses of the neighbourhood, b
splayed projecting bays and the closely spac
conies with their masses of iron railing do no
in securing that aim.

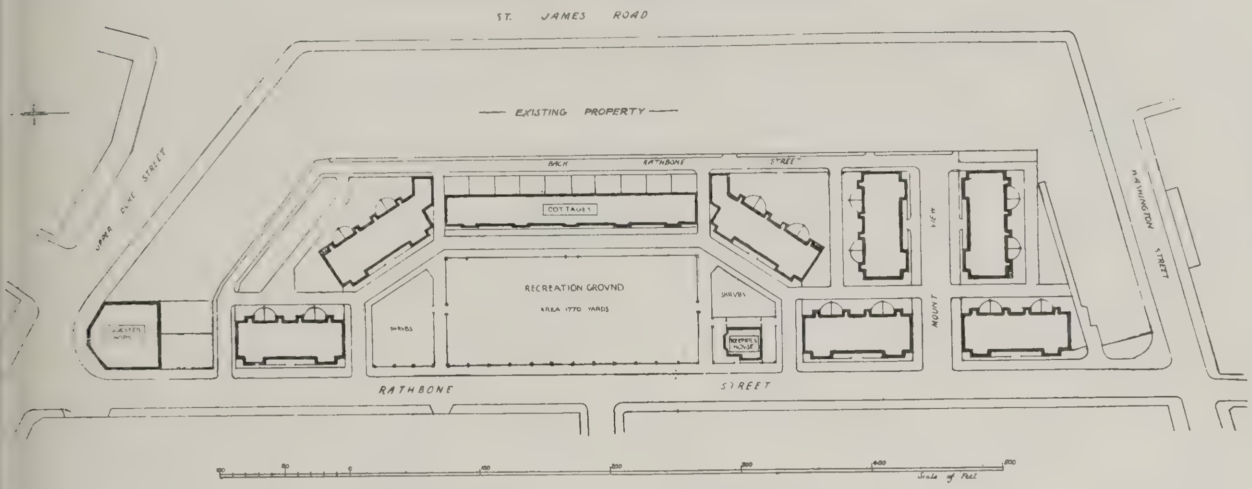
Reviewing the competition as a whole, o
say that the eighty odd schemes submitted r
competence greater in practical than in æ
problems. Admittedly city dwellings for the
ing classes constitute a difficult subject i
design. And the restrictions impose
competitions in the matter of rendering, l
them to Indian ink and forbidding the projec
shadows, did not conduce to the production
vincing work. All this, however, is no exc
the less than mediocre performance of the m
In most cases what should be the character
tenements was apparently unconsidered. Gr
essays in half-timbering sufficed. There w
abundant evidence of a strange faith in the
of terra-cotta dressings as things potent to
building into architecture. Half-a-dozen des
a quiet sound version of Georgian were, h
presented, and one at least—No. 27—po
genuine distinction.

The hanging of the drawings, whilst good
as light was concerned, suffered from lack of
some of the screens being much too close to

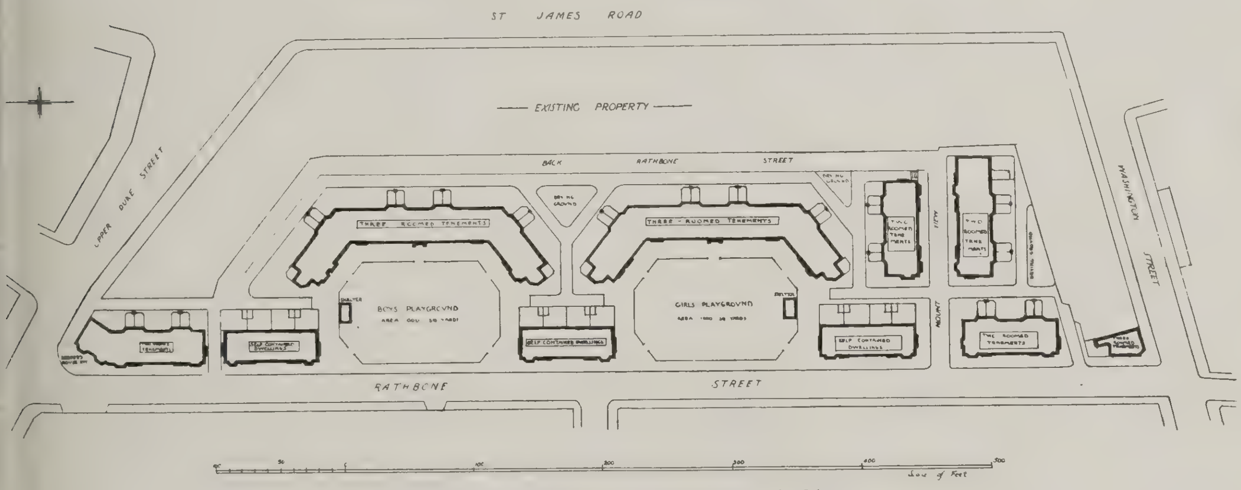
L.



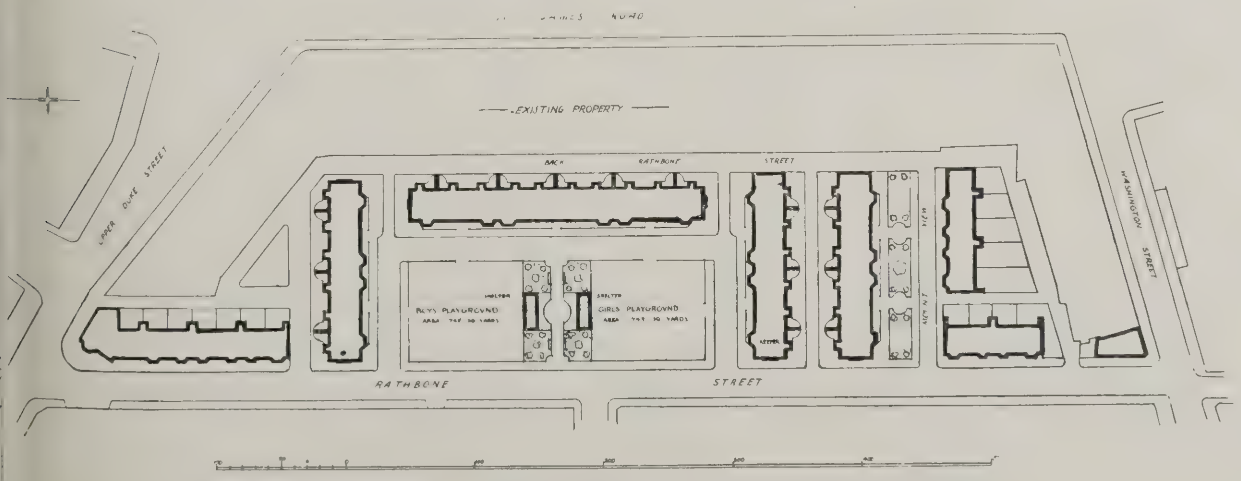
Site Plan (area to be treated indicated by hatching).



First-Premiated Design. Biram and Fletcher, Architects.



Second-Premiated Design. F. E. G. Badger, Architect



Third-Premiated Design. Halliday & Paterson, and G. Gustave Agate, Joint Architects.

COMPETITIVE DESIGNS FOR WORKING-CLASS DWELLINGS ON RATHBONE STREET AREA, LIVERPOOL.

THE ARCHITECTS' BENEVOLENT SOCIETY.

MORE FUNDS NEEDED.

The annual meeting of the Architects' Benevolent Society was held at 9, Conduit Street, W., on April 20, Mr. Ernest Newton, A.R.A., P.R.I.B.A., presiding.

The hon. secretary (Mr. Percivall Currey, F.R.I.B.A.) read the annual report, which recorded a falling off in the subscriptions, as compared with the previous year, of £27 18s. The anxiety was expressed that as many subscribers had been affected by the war the diminution would be increased during the coming year, unless those who were in a position to do so assisted the Society by augmenting their subscriptions or helping the Council to obtain new subscribers. It was stated that £1,150 had been distributed in grants and pensions, an increase of £141, as compared with the previous year. The capital account, on the other hand, had been increased. The Society in this connection was greatly indebted to the generosity of Mr. Henry L. Florence, F.R.I.B.A., vice-president, who last June presented a donation to the funded property of the Society of £1,000 City of London Corporation 3½ per cent. Bonds, 1914, fully-paid scrip. The capital was further increased by a donation of £550 made by Mr. George Neat acting under the discretion given to him by the will of the late Mr. Frederick Ingle, of 24, Queen Anne's Gate, S.W., and Chesterworth, Lincolnshire. A further instalment of £500 was received from the executors of the late Mr. William Glover, making the total amount received to date from this source £1,200. The Society was also indebted to the Chelsea Arts Club for a donation of £50, and to donors of smaller amounts. Last autumn the Council were informed by the executors of the late Mrs. Arthur Cates that she had left the Society a legacy of £1,000. As this amount was not, however, received before the end of the year. it was not included in the year's accounts. The report also referred to the formation of the Architects' War Committee, which, in November, handed £591 to the Society for administration in relief.

It was announced that the following five senior members retired by rotation from the Council: Messrs. E. Arden Minty, William Woodward, Arthur Ashbridge, Sydney F. Bartleet, and E. Guy Dawber. To fill the vacancies caused by these retirements the Council had nominated Messrs. W. Campbell Jones, Walter L. Spiers, Percy B. Tubbs, W. Henry White, and Edward Greenop. Messrs. Henry L. Florence and Reginald St. A. Roumieu were again nominated as vice-presidents.

The President, in moving the adoption of the report, called the attention of members to the fact that the Society had reached the goal it had had in view for many years—that was to say, they had brought their capital up to £20,000. He suggested they should now aim at £30,000. It was quite clear that large claims would be made on their funds on account of the war, and he felt that an ordinary appeal to architects would not be likely to be successful, as no doubt an increasing number would be suffering from lack of work. The Government's decision to divert work from building to other and more pressing necessities would extend this unemployment. He would therefore appeal to the generosity of those who were more fortunately situated to give aid to the utmost of their ability. They were not all able to follow the generous example set by Mr. Florence, but they could do their best, and he would like to remind them of the old saying, "He gives twice who gives quickly." In view of the action of the Government it might be necessary to make an appeal for funds outside their own ranks, but it would be premature to consider this at present. Assistance by way of employment had already been given to a large number of architects. This way of giving assistance seemed to him to be excellent. Their aim was to apply it to all parts of the Kingdom, and they looked to their colleagues throughout the country to make a special response to this appeal.

Mr. Chatfeild Clarke seconded the motion, and the report was adopted.

Mr. Ernest Newton was re-elected President, and the vice-president and members of Council were elected as indicated in the report. The other honorary officers were re-elected, the only change being in the auditors, Messrs. Edward Greenop and W. Henry White retiring in favour of Messrs. Herbert Shepherd and Osborn C. Hill.

OBITUARY.

Mr. Philip Webb.

The death of Mr Philip Webb, the architect, took place on April 17 at his residence, at Worth, Sussex. He was born at Oxford in 1831, the son of Charles Webb, a well-known doctor in that city. At the age of fifteen he was articled to an architect at Reading, with whom he served an apprenticeship of some four or five years. His father died in 1848, and on the termination of his articles young Webb obtained employment in the office of Mr. G. E. Street, then in Oxford and afterwards in London, with whom he remained as chief assistant for some years. While in Mr. Street's office he met William Morris, and formed the beginning of a friendship which was only severed by death. Morris, then a young man with leanings towards the architect's profession, became a pupil of Street's, and although (says a well-informed writer in the "Times") he soon abandoned the idea of becoming an architect, the friendship with Webb ripened under the influence of a common love of architecture and a perception that its study included more than was likely to be found in an architect's office. Both before and after the formation of the firm of Morris and Co. they did much work together; among the early productions of this kind may be mentioned the adornment of the dining-room at South Kensington Museum, which was done about 1867; but before this, in 1860, Webb had built the Red House at Upton, in Kent, for Morris. His growing private practice put an end to Webb's immediate connection with the firm of Morris and Co., but not to the fruitful influence which the friends had on each other's life and productions. Between 1860 and 1900 Webb built some fifty or sixty houses and one church, that at Brampton, in Cumberland, the uncompleted tower of which he designed after his retirement in 1905—his last piece of architectural work. One of his largest works was Clouds, the residence of the Hon. Percy Wyndham, near Salisbury, which was finished about 1886 and rebuilt after the fire in 1890. He built a large house for the present Lord Carlisle in 1868 at Palace Green, Kensington, another large house at Rounton, in Yorkshire, for Sir Lothian Bell in 1875, and many houses in Surrey. He also made many important additions to old houses, a kind of work in which he delighted. One of these was a large addition to Forthampton Court, near
Tewkesbury, in 1891. His work i
in addition, much decoration of
kinds, and he made many designs f
papers, tapestries, tiles, and other
In all these he made most compl
often very beautiful drawings, oft
making studies direct from nature
designs may be said to echo m
styles, though never imitating any
particular; they showed always
dislike for trivial or meaningless or
With Morris he founded the Society
Protection of Ancient Buildings.

Mr. Alfred Samuel Goodrid

The death has occurred at Bath
Alfred Samuel Goodridge, who
oldest in point of membership
register of the R.I.B.A., of which
an Associate. His father, Mr. H
Goodridge, flourished as an arch
Bath in the first quarter of the ni
century. A fair specimen o
designed by the elder Goodridge
seen in the Neo-Grec front of
Chapel, added to that building
and he was also architect o
Corridor," built after the plan of
lington Arcade in London. T
whose death we now record, stu
London and abroad and enjoyed
practice in the West and South
land for upwards of half a century.
the notable buildings he designed
Trowbridge Town Hall; he was
of the Laura Place Fountain
erected to commemorate the cent
the Bath and West of England
and besides superintending man
tant alterations in the city
several ambitious schemes for i
Bath, which, however, did not m
on account of the vast expense
He was in his eighty-eighth year a
a widow, a son, and a daughter.

[An obituary notice of Mr.
Coignet appears on p. xix.]

LONDON MASTER BUIL ASSOCIATION.

A conference consisting of re
tives of various Trade Societies
with the building industry took
Thursday with the members of th
of the London Master Builders'
tion, in which a request for an a
2d. per hour for all trades to co
for the serious reduction in re
consequent upon the greatly incre
of commodities since the war wa
ward, and after discussion the
Council arrived at the followin
tion:

"That this Council is unable
the members of the Association t
any further increase in the rate
but is quite willing to recom
extending of the ordinary worki
such extension not to exceed two
day first five days of the w
September 30 next."

Under this proposal the emplo
only benefit to the extent of bei
make a little more progress. It
bring him any profit (if he paid
time rates it would only increase
The workmen would draw increa
each week, which would to a gr
meet the extra cost of food, etc
quently the only contribution of
man towards the national crisis
that he should work from five to
extra per week at full pay.

This does not appear to de
great sacrifice, and would to a gr
solve the problem of the increas
living. This offer was refused.

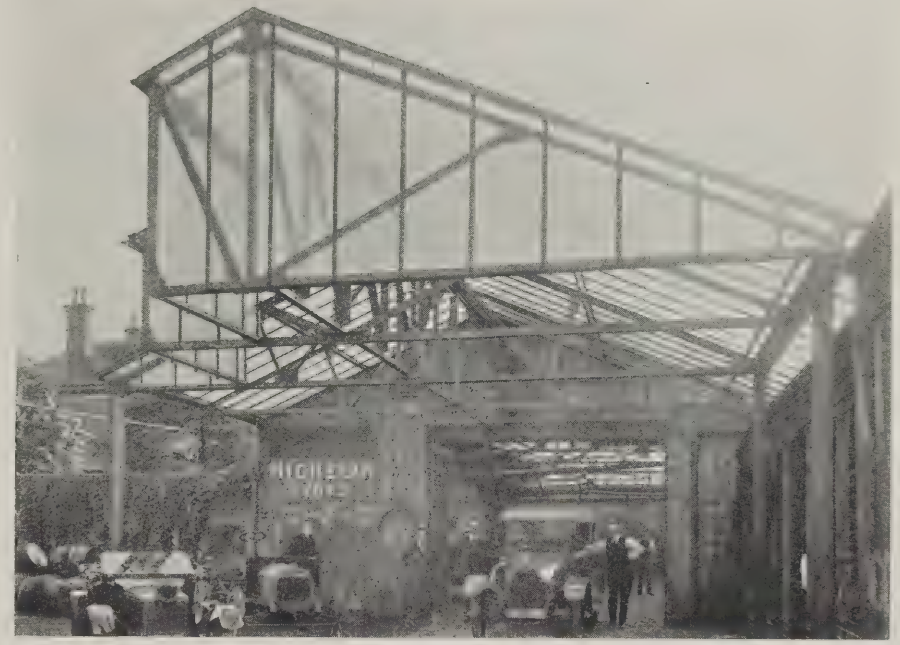
CONCRETE AND STEEL SECTION.

(MONTHLY.)

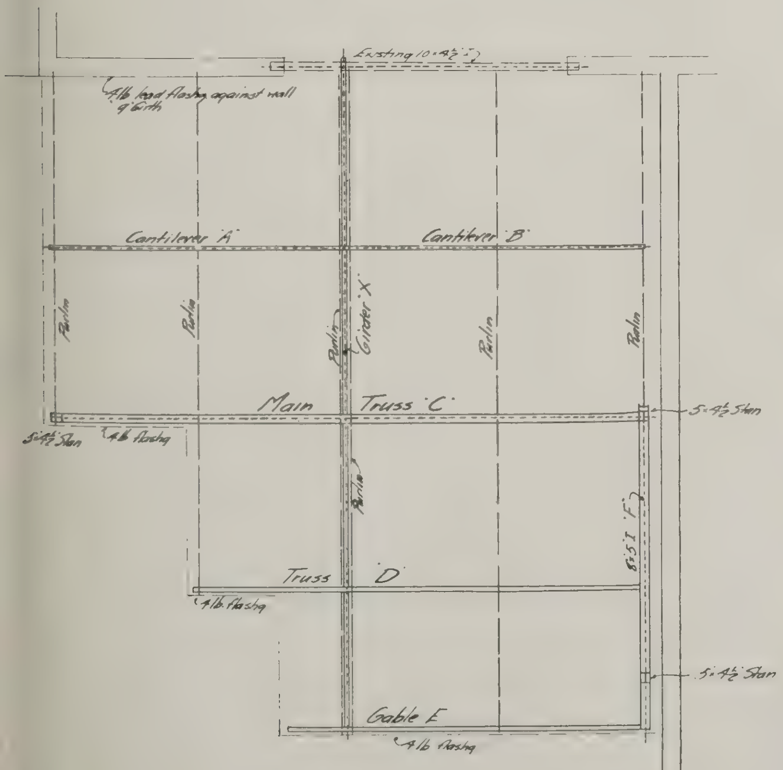
N INTERESTING ROOF.

accompanying illustrations show a
:eresting roof over a garage yard at
tead which has been designed and
for the London County Motor Co.,
16 and 230, Upper Thames Street,
The roof presents a type of con-
n designed specially to meet cer-
ints peculiar to the site. The boun-
all seen in the photographs runs
de a public road, and the London
Council stipulated that the roof
e yard should be kept back at least
from the road. This stipulation
some difficulty as the wall curves
ather sharply. The case was met
pping the roof back on at three
each about 6 ft. from the wall. A
difficulty, however, arose from the
at as motor-cars are continually
in and out of the vard it was essen-
keep the space as clear of stan-
as possible. Eventually it was
ossible to have only one stanchion
niddle, the roof being carried on a
of cantilevers off a main truss,
C on the accompanying plan.
ss has a bearing at each end over
ion, one being against the wall of
e. Using the main truss as a ful-
lattice girder was erected from the
ll to the end of the roof; the por-
m the main truss C to the end
eing a cantilever X. This canti-
rries a truss D and gable frame E,
lso receives a bearing, at the office
an 8 by 5 rolled steel joist. In
g the roof it was found that D and
ised a leverage on the end wall,
ich the cantilever X is built, and
was excessive for the small weight
ckwork, secondary cantilevers,
A and B, were introduced to balance to some extent the loads from D and E. As a result there is very little reaction at the wall end of the cantilever X, the main truss C carrying the greater part of the load from the whole roof. The valance, gables, and roof are glazed on steel bars.

The whole of the work was made and erected in three weeks, under the supervision of the District Surveyor, Mr. F. Hammond, to his and the owners' complete satisfaction.



ROOF OVER GARAGE YARD, WEST END LANE, HAMPSTEAD.



PLAN SHOWING ARRANGEMENT OF TRUSSES AND CANTILEVERS.

REINFORCED CONCRETE AND THE LONDON BUILDING ACTS.*

BY OSBORN C. HILLS, F.R.I.B.A., M.C.I.

This paper is submitted with the view and the hope that a new Act will shortly be prepared embodying the existing laws, by-laws, and regulations. In 1894 our present London Building Act was passed, and thereby cancelled some thirteen existing Acts which had to be read together. Twenty-one years have elapsed since then; many decisions have been given in the High Courts, some of which completely annul the intention of the Act; many amendments have been framed, some of which have become law; and it will soon be necessary to repeat the process of 1894 and pass a new Act embodying all the existing laws and regulations, with certain desired modifications and improvements. Such improvements should be the carefully considered results of the various authorities. The Royal Institute of British Architects, the London Society, the Town Planning Association, architects, surveyors, structural engineers, builders, and property owners should now unite in preparing such improvements in the Acts as they consider essential in readiness for submission to the proper authority. The London County Council fathered the Act of 1894 through Parliament, and the writer believes they have already collected much material for a proposed new Act.

It is not suggested that the Concrete Institute should take the initiative in the matter, but having already been recognised by Parliament in the 1909 Amendment Act it should be prepared at the right time to suggest such amendments as will conduce towards sound construction on economical lines.

The Act should be clearly understood

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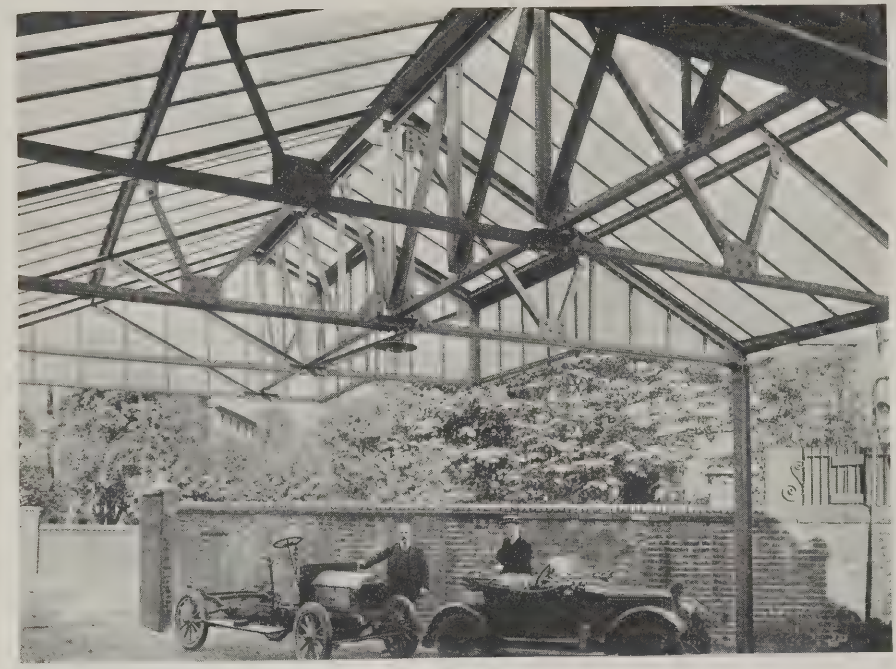
* Abstract of a paper read before the Concrete Institute.



ROOF OVER GARAGE YARD, WEST END LANE, HAMPSTEAD.

by all who read with average intelligence. It has to be administered by the London County Council and district surveyors. There are two important ways in which the Act needs amendment: (1) by making clear certain ambiguous and faulty wording, or wording that has been the subject of ambiguous or unsatisfactory decisions, and (2) by adding to or deducting from the existing provisions.

The chief objects of the Acts are fourfold: (1) To secure a proper width and direction of streets; (2) the sound construction of buildings, (3) the diminution of danger arising from fire, and (4) the securing of more light, air, and space round buildings.

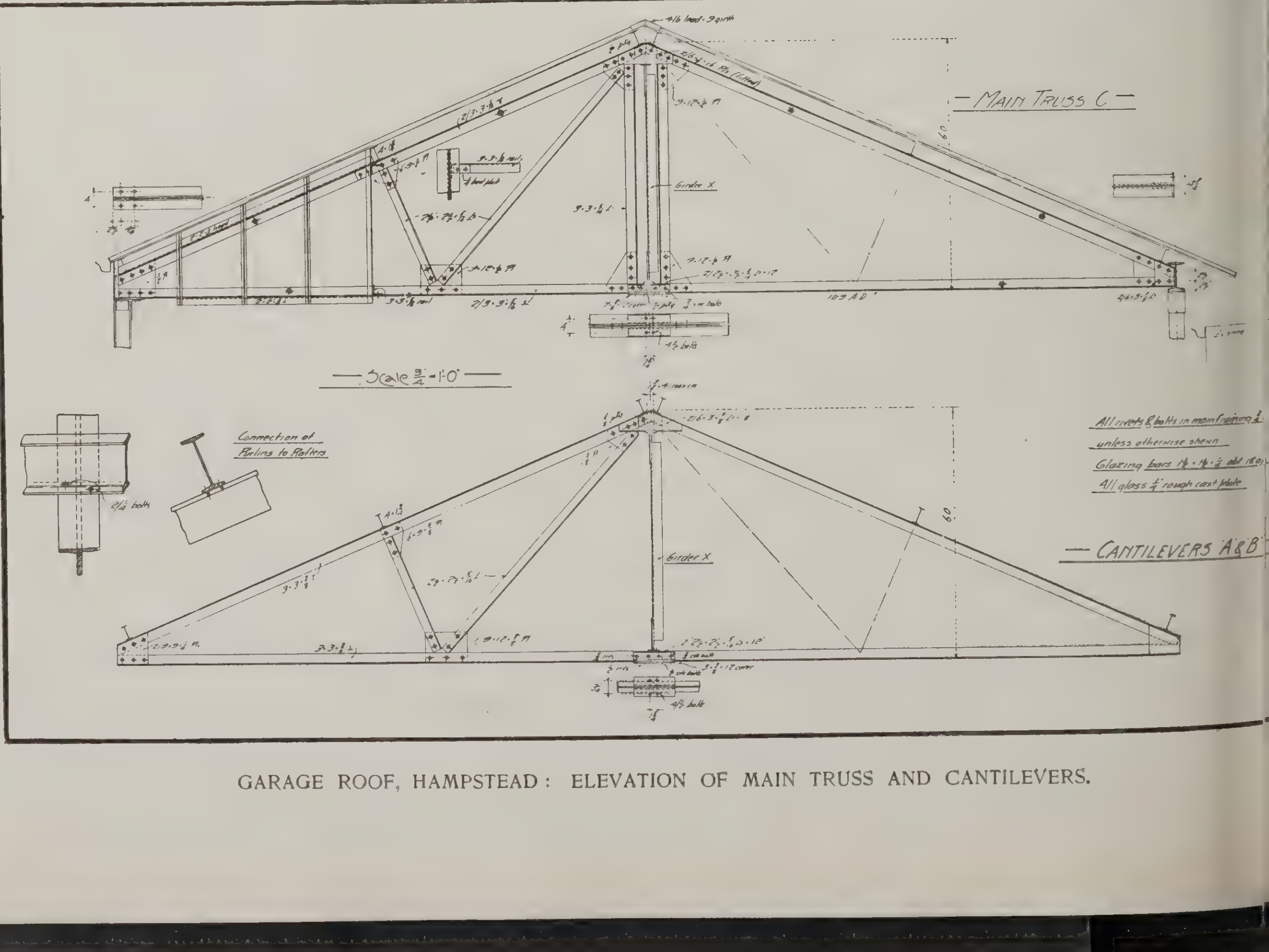
(*To be continued.*)

REINFORCED-CONCRETE FACTORIES.

The ideal factory for reinforced concrete, said Mr. Segar Owen, in his paper on "The Design and Construction of Industrial Buildings," read before the R.I.B.A. on April 19, was one made up of units of space and loads as regards floor area and machinery, each floor being set out without much possibility of change. Fire-resisting, temperate, vermin-proof, these buildings formed excellent stores, and where carriage of large and heavy girders to the works site is a big item of expenditure, a considerable saving could be made by this form of construction. As regards the exterior design
of a reinforced-concrete factory buil
he would suggest that it be of a
type, straight piers, beams, and li
with the cornices and strings on a si
bold line.

In the construction of the moderr
tory, the walls were considered only
means of enclosing a covered space t
tect it from the weather, and possil
give some support to more or less i
tant floors and details of plant. I
quite true that in buildings of no
height and of no great storage weigh
walls as piers between the window
performed the office of weight ca
but as floor loads had increased, and
and openings widened, the concent
of the load on to the brickwork be
the windows had been too great
safely carried by this material, with
considerable increase in the size of
piers, and the consequent loss in
space and window area. This conc
tion of load on to the piers brought
the substitution of the steel stanch
the weight carrier, and at a later da
building up of a skeleton steel struct
outer and inner stanchions, floor g
and joists, with steel window linte
sills. Such a structure gave a ma
strength, in a minimum of space oc
by the supports, and had also a gre
vantage in quick erection, and of ca
strong and suitable attachments for
or load carriers. These skeleton
tures were afterwards clothed with
of brickwork or concrete between th
uprights, and in other ways cove
suit the wishes of the proprietor.

It was not every factory, ho
where the loads on the outer wall r
tated anything more than the or
brickwork, and in the matter of a
ance there was a great deal to be s
those factories where the outer wal
still carrying their share of the loa
represented a reasonable proport
solid brickwork to window op
A steel structure often looked like
tinuous sheet of glass divided by
chions.


— MAIN TRUSS C —
Girder X
— Scale ⅜"-1'0" —
Connection of Purlins to Rafters
Girder X
All rivets & bolts in main framing ¾"
unless otherwise shewn
Glazing bars 1½ · 1½ · ¼ abt 18 o/
All glass ¼" rough cast plate
— CANTILEVERS A&B

GARAGE ROOF, HAMPSTEAD: ELEVATION OF MAIN TRUSS AND CANTILEVERS.

PLES OF STRUCTURAL DESIGN IN STEEL FRAME BUILDINGS UNDER THE L.C.C. GENERAL POWERS ACT, 1909.—II.

BY PERCY J. WALDRAM. F.S.I.

(Continued from page 176, No. 1058.)

ɩIVETED PLATE GIRDER.

span, carrying three 16″ × 6″ ists, imposing reactions of 12 ı, on each side of girder.

ɔp of the joists to be 6″ below f the rivets on the upper flange ırder.

conomy of Plate and Compound Girders.

und girders can usually be up to about 40′ 0″ long, and they are heavier, strength for than riveted plate girders, the f metal is only effected by greater labour and expense in n, which materially increases per ton. Therefore, at least rate loadings on shorter spans, lers are apt to prove the more type, and are usually em- nly when the necessary length s substantially over 40′ 0″.

of Resistance of Plate Girders.

ethods by which the moment nce of plate and lattice girders ted is simpler than that which sary when plates and rolled compounded. The moment of not computed, but a "lever effective depth is assumed, at of which the net area "a" of the d angles forming one flange practical accuracy be assumed form the section modulus, or a × d and M.R. = a × d × f. nsion taken for this lever arm pth over the horizontal backs ange angles, which dimension e depth of the web plates and ll depth of gusset stiffeners.

mic Ratio of Depth to Span.

ient depth in a plate girder not lves heavy flanges on account of ted lever arm, but also thick and bs on account of the enhanced esses. On the other hand, of creased depth must be paid for ape of additional web plating ners. It is usually found that st net economy is secured when over angles is made about one- ne-twelfth of the span.

rmination of Weight of Girder.

eight of plate girders is some- imated by the short formula:

$$\text{tons} = \frac{WL}{560} \text{ in which } W =$$

ıs and L = span in feet.

$$\text{case } \frac{72 \times 48}{560} = 6{\cdot}4 \text{ tons.}$$

oderately loaded girders of depth this formula may be to give results which are un- ; but as the weight of the ms but a small proportion of load it may be adopted in the ıs.

Design of Web.

mary factor in a plate girder is ntal shear stress, which determines the number and pitch of rivets between the web and flanges and therefore affects the selection of the flange angles.

If the stiffeners are sufficient to resist as posts the vertical shear operating where they occur, it is only necessary to provide inclined tension members between them to form an adequate and complete web; and there is no more need for the web to be designed to resist diagonal compression (as in unstiffened compound girders and joists) than there is to design the tension members of a lattice girder not subject to rolling loads to resist compression.*

Bearing Area in Web.

The strength of the plates and the rivets to resist shear is also greater than their capacity to resist the bearing stress occurring between the rivets and the plates through which they pass, and the plate thicknesses and rivet pitches are therefore selected with a view to their strength in bearing.

It should be remembered that the bearing area of a rivet on a plate "t" inches thick is t × diameter of the rivet, not its semi-circumference, i.e., a round rivet shank presents only the same bearing surface as a square shank.

Although the intensity of horizontal shear is equal to the intensity of vertical shear at any *point* in the span of a girder, the vertical shear varies from point to point, and the intensity of horizontal shear along any given length of girder varies accordingly.

The web thickness, however, cannot be altered between any two stiffeners, and it is also inconvenient to change the rivet pitch except at a stiffener. Each bay of the web is therefore determined by its maximum shear intensity, which can readily be ascertained from a diagram of vertical shears. The tendency of horizontal shear is to tear away the web plates from between the flange angles, and the intensity of this tendency or the resistance to be provided per foot run horizontally along any bay is assumed to be equal to the vertical resistance per foot in depth of web of jointed web plates at the worst position in the bay, generally at that end of the bay which is nearest to the bearing.

End Bays of Web.

The end reaction is 39·2 tons, or $\frac{39{\cdot}2}{4{\cdot}5} = 8{\cdot}7$ tons per foot in depth of web. The horizontal shear along the first bay is presumed to be of equal intensity. The permissible bearing stress being 11 tons per square inch, the requisite bearing area per foot run $= \frac{8{\cdot}7}{11} = {\cdot}8$ square ins.†

Rivets $\frac{3}{4}''$ diameter and 4″ pitch in $\frac{3}{8}''$ plate would give a bearing area of 3 × ·75 × ·375 = ·84 square inches in area. For interior girders efficiently cased, and therefore protected from rust, web plates as thin as $\frac{5}{16}''$ or even $\frac{1}{4}''$ may be used. Rivets 3″ pitch in $\frac{5}{16}''$ plate would give a bearing area of ·93 square inches per foot run, but it is preferable to keep the pitch constant throughout the girder, and if necessary reduce the web plate thicknesses towards the middle of the span.

Spacing of Stiffeners.

Unless the loading is light enough for the web to resist diagonal compression, the maximum spacing of stiffeners centre to centre is usually about $1\frac{1}{2}$ times the depth over L^s, and on heavily loaded spans they are placed at a distance apart equal to the depth or even closer. With cross girders 12′ 0″ apart, the stiffeners may be placed at 6′ 0″ centres (one to a bay) in the central bays, and 4′ 0″ apart (two to a bay) in the end bays.

Design of Stiffeners as Posts.

Even without considering the strength of the web in compression, stiffeners of angle steel usually form very stiff and sturdy posts, capable, as columns, of meeting substantial vertical shears.

Stiffeners usually consist of one or two angles and a T section, either joggled over the flange angles, or forged to an angle of 45° to pass clear of them and riveted to the flange plates. The latter form is suitable for riveting on gusset plates.

The radius of gyration of a 6 × 3 × $\frac{3}{8}''$ T.S. in the axis of the web is ·795, the area 3·26 sq. ins. and the centre of gravity ·633″ from the face of the table. The I is therefore $\cdot795^2 \times 3{\cdot}26 = 2{\cdot}062$, and the r.g. of two T's, back to back and separated by, say, $\frac{1}{4}''$ of web plate would be as follows:

$$I = (2 \times 2{\cdot}062) + (6{\cdot}52 \times \cdot758^2) = 7{\cdot}884.$$

$$\text{r.g.} = \sqrt{\frac{7{\cdot}884}{6{\cdot}52}} = 1{\cdot}1$$

The web being neglected, the permissible stress may be taken as at least that of a column with fixed ends $= 6{\cdot}5 - \frac{54}{40 \times 1{\cdot}1} = 5{\cdot}3$ tons per square inch.

The r.g. of 2 — 3 × 3 × $\frac{3}{8}''$ angles would be practically the same, and the same stress may be taken on them. Angles $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}''$ on each side of the web would similarly have a radius of gyration of 1·07 and a permissible stress of 5·2 tons per square inch.

The shear from the bearing to the first joist varies from 39·2 to 37·6. Two 6 × 3 × $\frac{3}{8}''$ T.S. would have an area of 6·52 square inches and a permissible load of 6·52 × 5·3 = 34·7. The stiffeners over the bearings may therefore be conveniently formed of two 3 × 3 × $\frac{3}{8}''$ angles (area 8·44 sq. ins.) with a $\frac{3}{8}''$ gusset plate in addition and the two intermediate stiffeners in the end bay 6 × 3 × $\frac{3}{8}''$ T.S. joggled.

Over the two central bays the shear varies from 12 tons to 13·6, for which 6 × 3 × $\frac{3}{8}''$ joggled stiffeners will be ample. Stiffeners under the joists should have gussets, and may be formed of two 3 × 3 × $\frac{3}{8}''$ angles with $\frac{3}{8}''$ gussets.

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* "Principles of Structural Mechanics" (Batsford), p. 172.

† "Principles of Structural Mechanics" (Batsford), p. 178.

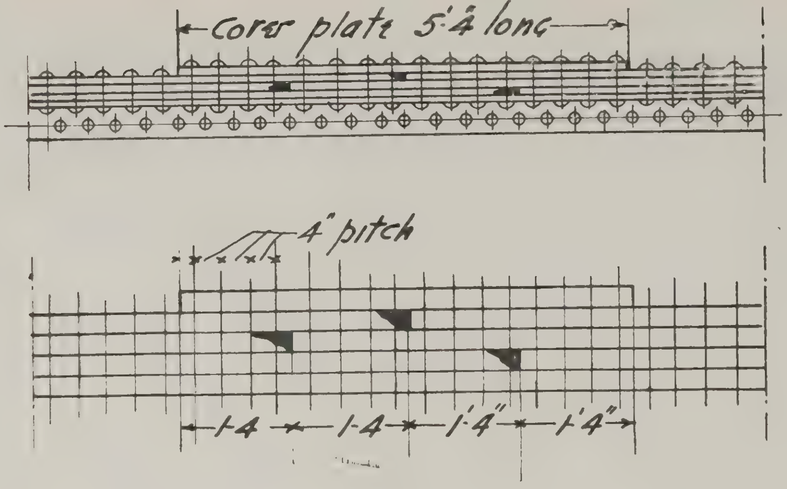

Fig. 3.

The central one might be reduced to $2\frac{1}{2}''$ angles, but it would not be worth while either to introduce a new section or to vary the spacing of the connecting bolts of the joists.

Web Joints.

Using $\frac{3}{4}''$ rivets 4" pitch the web may be reduced to $\frac{5}{16}$ when the shear amounts to $3 \times {\cdot}75 \times {\cdot}3125 \times 11 \times 4{\cdot}5 = 34{\cdot}7$ tons, and to $\frac{1}{4}''$ when it is $34{\cdot}7 \times \frac{{\cdot}25}{{\cdot}3125} = 27{\cdot}7$ tons. The joint should not be made under a joist connection, and the thickness may therefore be conveniently reduced to $\frac{1}{4}''$ at the T stiffener 18' 0" from the bearing.

Design of Flanges.

Section 22 (b) of the Act stipulates that a girder should be secured against buckling whenever the length (i.e. presumably the span) of the girder exceeds 30 times the width of the compression flange. The girder under consideration would of course be amply stiffened by the joists at each side, but a width of $\frac{576}{30}$, say 20", would not be excessive and would conveniently take the 4 rows of rivets required for gusset stiffeners.

Flanges are generally built up of angles and plates not greater than $\frac{3}{8}''$ thick in order to secure economy in cutting off.

Deducting $\frac{13}{16}''$ for every $\frac{3}{4}''$ rivet the net area of one $3 \times 3 \times \frac{3}{8}''$ angle S. would be $2{\cdot}112 - {\cdot}6 = 1{\cdot}512$ sq. inches, and the net area of a plate $20'' \times \frac{3}{8}''$ less 4 rivet holes would be $7{\cdot}5 - 1{\cdot}2 = 6{\cdot}3$ sq. inches.

Bending Moment.

The bending moment at the centre due to the distributed load of $6{\cdot}4$ tons $= 6{\cdot}4 \times \frac{576}{8} =$ 460 inch-tons.

The B.M. due to the point loads is $36 \times 288 - 24 \times 144 = 10308 - 3456 = \underline{6852}$ inch-tons

$\underline{7312}$ inch-tons.

The net sectional area of flange plates and angles required in the centre is therefore $\frac{\text{B·M.}}{d \times f} = \frac{7312}{54 \times 7{\cdot}5}$ tons per sq. inch $= 18{\cdot}1$ sq ins.

$= 18{\cdot}1$ sq. ins.

Two $3 \times 3 \times \frac{3}{8}''$ angle $= \underline{3{\cdot}0}$

leaving $\underline{15{\cdot}1}$ „ „

for the plates. The number of plates $= \frac{15{\cdot}1}{6{\cdot}3}$, say 3. The B.M. diagram for cutting off plate lengths is drawn in the usual way.

Actual Weight of Girder.

The weight of girder as designed is 4·76 tons. The provisional estimate of 6·2 tons is therefore sufficient.

Bearings of Brick and Stone.

The area of a bearing plate or a stone template in blue brickwork in cement capable of receiving 12 tons per foot super would be $\frac{39{\cdot}2}{12} = 3'\,4''$ super, say $2'\,6'' \times 1'\,6'' \times 12''$. The area of bearing plate on stone at 20 tons per foot super, say 2' 0" super, or say $1'\,11'' \times 1'\,2'' \times \frac{3}{4}''$.

Estimated Deflection.

The girder being designed to a certain flange stress the deflection Δ may be estimated from the formula $\Delta = \frac{pS^2}{d} \times {\cdot}083$.*

If p be taken at $\frac{5{\cdot}5}{24}$ the mean between the values of uniform section and uniform flange stress, the deflection =

$$\frac{5{\cdot}5 \times 48^2 \times {\cdot}083}{24 \times 54} = {\cdot}8''$$

Camber.

Girders are frequently built to a camber equal to the estimated deflection. This involves considerable extra trouble and expense with practically no equivalent advantage.

Joints in Flange Plates and Angles.

Joints in plates and angles are required when the length exceeds say 30' 0", and are made by scarfing on lengths of plate and angle of the same area, so that the patch is equal to the section lost in the joint. The number of connecting rivets or stitches on each side of each patch is determined by their strength in single shear. For a $\frac{3}{4}''$ rivet this is ${\cdot}75^2 \times {\cdot}7854 \times 5{\cdot}5$ tons per sq. inch $= 2{\cdot}43$ tons per rivet. The net area of a $3 \times 3 \times \frac{3}{8}''$ angle being 1·512 the strength to be picked upon each side of the joint is $1{\cdot}512 \times 7{\cdot}5 = 11{\cdot}4$, and the requisite number of rivets is $\frac{11{\cdot}4}{2{\cdot}43} = 5$ or, say, scarfs 1' 4" long on each side of joint. The joints on angles should be staggered as shown.

The joints in flange plates are calculated similarly, *i.e.*, number of rivets on each side of a joint in a plate 6·3 square inches in area $= 6{\cdot}3 \times \frac{7{\cdot}5}{2{\cdot}43} = 20$ = 6 rows of 4 rivets each, or scarfs long in all.

The joints in several plates coul spaced 2' 0" apart and grouped unde joint plate as Fig. 3, or an upper can be extended 2' 0" beyond the rec ments shown by the cutting off diag to form a joint plate for a plate belov joint being made under the point the upper plate would otherwise t nate.

COMPETITIONS.

Elementary and Special Schools, I

The assessor in this competition Percy Worthington, M.A., has mad following award: 1st, F. Qu Farmer, Stalybridge and Coventry Charles S. Adshead, Manchester Halliday, Paterson, and Agate, chester. The estimated cost is £21,000.

Whitehaven Housing Scheme

We are informed by the Secretary Royal Institute of British Architect in consideration of the following taking contained in a letter from the Clerk of Whitehaven, dated Mar 1915: "With regard to the appointm the author of the design placed f architect of the buildings, the inten my committee has always been th successful designer should be the arc unless there was some objection being so," the Competitions Comm the Royal Institute of British Arc desire to withdraw the warning to bers against this competition whi been published in the R.I.B.A. Jour the professional press. It will be bered that, as we announced last the Council of the Society of Ar have also withdrawn their intima members.

LIST OF COMPETITIONS

May 10. — Housing, Whiteh Corporation invite designs for lay site and erection of houses. Au design placed first to be employed a tect, or otherwise to receive 30 premium; second premium, 20 g third, 10 guineas. Conditions (£2 turnable), The Borough Surveyor Hall, Whitehaven. [See note abo

May 31. — Laying-Out Grou University of Western Aust Designs are invited for the layin the grounds at Crawley, Perth, Australia. Premiums, first, 100 second, 25 guineas. Drawing reach the Registrar, University o not later than May 31. Documen ing to the competition may be see offices of the Agent-General for Australia, Savoy House, Strand For particulars, see our issue of M p. xiv.

No Date. — Municipal Bu Stepney.—Designs are invited by Borough Council for new municip ings. Particulars from Mr. Clarke, Town Clerk, 15, Great Ali Whitechapel, E.

No Date.—Small Hospital, haven.—Designs are invited by Joint Hospital Committee for a sr pital. Apply Mr. E. B. Croasdel Hall, Whitehaven.

No Date. — Cottages, Che Designs for cottages on the Bron Estate, Cheshire, are invited by Lever Brothers. Particulars of premiums offered were given in of March 17, p. xiv.

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*"Principles of Structural Mechanics" (Batsford), p. 199.

BRITISH INDUSTRIES FAIR.

ish Industries Fair, organised by the Board of Trade,
at the Agricultural Hall on May 10 will offer many
exceptional value to those interested in the reorga-
British trade.
20 manufacturers will display their goods, and the
rade will be able to vouch for every article shown.
tives of the Board are visiting the factories of each
and permission will only be given for the exhibition
manufactured in this country under conditions which
oard's approval. This is a development of the cam-
he encouragement of "British-made" goods.
at advantage which will result from the personal rela-
een the exhibitors and the representatives of the
Trade will be that, as the men who are now visiting
ill all be in the Hall and their services will be at the
buyers as well as of exhibitors, it will be possible
to get personal introductions to makers.

OF MR. EDMOND COIGNET.

atly regret to hear of the death of Mr. Edmond
which occurred on March 29 last in Paris, after a
ness. He will be remembered by all as one of the
f reinforced concrete. The late Mr. Coignet studied
g at the Ecole Centrale of Paris. In 1879 he was
ficer of the Legion d'Honneur, and he obtained the
ards for his well-known system of reinforced concrete.
fted with an extraordinary amount of energy, which
to a large number of branches of human activity.
was not only an eminent engineer for works in re-
oncrete, but was also thoroughly versed in all other
of engineering. He constructed a large number of
nd electric tramways in France, in South America,
ly in Italy. A few years ago he entered into a con-
the construction of the Port of Bahia, in South
This work, the cost of which amounts to several
rling, is not yet completed. He was also chairman
in Paris, which he created for the special purpose
with industrial enterprises. During recent years his
sought by the directors of the "Ecole Centrale" in
erning improvements in their curriculum. He was
of the Chambre Syndicale des Constructeurs en
rmé. He was also a member of the Chamber of
of Paris. François Coignet, the father of the late
Coignet, is generally regarded as having been the
of reinforced concrete. In 1881, six years before
nier took out his first patent, he published his cele-
emoirs concerning the application of concrete to
nstructions, and in his description he clearly defines
racteristics of reinforced concrete construction.
mond Coignet was not only well known as an inventor
n of considerable practical experience, but he pos-
a very considerable knowledge as a theorist. He
ed the "Baude" gold medal for having defined in a
y clear manner the basis of the calculation of re-
concrete in his communication to the Société des
Civils de France, and his theories were confirmed
the works of the Commission Ministerielle du Ciment
1892 he persuaded the engineers of the Paris County
adopt his system for the construction of a large
Achères, near Paris, which brought about a consider-
g on the original design in heavy concrete masonry.
arkable work, which was visited a few years ago by
ete Institute, of which Mr. Coignet was an honorary
was the first large sewer constructed in this material.
net's name, however, became universally known on
f the monumental waterworks known as the Château
ich he designed and constructed for the Paris Exhibi-
oo, and for which he was awarded the "Grand Prix"
d medal. Amongst his numerous patents concerning
concrete may be mentioned, as having an excep-
ortance, his patents for piles, the application of which
ntry brought about a celebrated patent action which
eral years, and in which Mr. Coignet was finally suc-
efore the House of Lords. For many years the
System" has been represented in this country by
dmond Coignet, Ltd., Mr. Coignet being chairman.
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nber of important works in this country—amongst
several large buildings for H.M. Office of Works, and
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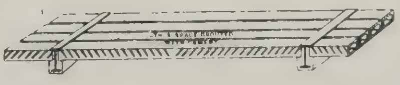

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No. 134.

(From Piranesi.)

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MAY 5, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 10

EDITORIAL.

LIEUTENANT MAURICE E. WEBB, Royal Engineers, has a most interesting letter in the current issue of the "Architectural Association Journal," which number, by the way, is entirely taken up with matters relating to the war, except for a few official announcements, and for a very brief note on the late Walter Crane, to whom the Association is indebted for the design of its crest, which certainly is, as the editor remarks, "a happy example of Crane's genius." Mr. Webb is very naturally delighted with the success of the A.A. recruiting branch, which has supplied some four or five hundred men for the services; and he makes a rather happy reference that will bear quotation. "Architects have always," he says, "from Michael Angelo downwards, lent their help when their country was in need. He gave up a magnificent practice, as it would now be called, to design fortifications. Architects of the present day are doing the same."

* * * *

One likes to think that Michael Angelo is of the company, although the sacrifice he made was not entirely voluntary, nor was he, at the moment, in practice as an architect. Rome having been sacked by the Austrians in 1527, the Florentines seized the opportunity to expel the Medici and set up yet another republic. This occurrence caused the abandonment, for lack of funds, of the scheme upon which Michael Angelo was engaged for setting up a group of monuments to the Medici in San Lorenzo. At the same time he was preparing designs for the Medicean Library, but this work also was stopped, and at the moment when the architect was called upon to act as engineer-in-chief of the fortifications at San Miniato in 1529, he had gone back to sculpture, or, rather, was occupied in making designs for a colossal group of "Samson and the Philistines." But Mr. Webb's allusion loses nothing of its force and felicity by this narration of the cold facts, which, moreover, shows that the comparison is in one sense considerably to the moral advantage of those excellent young men who have cheerfully and voluntarily given up everything that peradventure they might speak with the enemy at the gate.

* * * *

Was Michael Angelo's great contemporary Leonardo da Vinci also a soldier? He was everything else—painter, sculptor, architect, musician, philosopher, man of science, traveller, inventor of mechanical devices; and that this "Faust of the Renaissance" should have suffered his life's experiences to be incomplete in the matter of military service is the less credible if we remember that he was prolific in the device of engines of warfare, including "steam-cannon and cannon to be loaded at the breech," and would have lost no opp
of ascertaining by personal observation h
of these devices as had materialised were b
themselves in action. It is pretty safe to
that he saw some fighting, and that he took
it, even though we may not claim him as
trious example of the architects wh
abandoned practice to take up arms.

* * * *

Universal genius as he was, touching noth
he did not adorn—"And still the wonder gr
one small head could compass all he k
Leonardo is vastly more remarkable for his
tions than for his achievements. He woul
could not specialise, and "when he shou
wholly consecrated himself to painting, i
he would, no doubt, have become another
he entirely surrendered himself to the s
geometry, architecture, and anatomy."
he wrote to the Duke of Milan, "In time o
shall be of as much service to you as anyone
ever concerns the construction of buildings
is not clear that he had any opportunity o
sing this ability in three dimensions. N
ing that can be with certainty attributed
can be indicated; but tradition connects h
many important buildings that were p
Lombardy between 1472 and 1499 and a
wise unassigned, while manuscripts of his
the assumption that he had a hand in c
Pavia Cathedral and the church of Santa M
Grazie at Milan.

* * * *

Mr. Theodore Andrea Cook, in his in
volume of more or less speculative p
entitled "The Curves of Life," does not h
credit Leonardo with the design of the v
open staircase in the courtyard of the Ch
Blois, on the Loire, and has been at much
collect and digest evidence in support of t
bution. Mr. Cook's argument is perha
curious than convincing. Briefly summari
own words, it is: "That the Blois stair
definitely suggested by a certain shel
vespertilio]; this involves that the architec
Italian; we find further that he must hav
studied shells and leaves in order to dis
secret of their growth and beauty; that he
handed; that he must have been appointed
to the King of France; and that he must hav
or near Blois between 1516 and 1519
handed spirals, it appears, are rare both
and in art, and Leonardo, being a left-hand
it may be remembered that he had the
writing from right to left, in imitatio
Oriental manuscripts he had seen in his

-chose to imitate the leftward-circling spiral
hell so rarely shaped by some left-handed
the Ocean." We should have thought all
mbidextrous, and that so all-round a genius
rdo was of their number; but ambidexterity
rchitect would have robbed Mr. Cook of a
ebating (and strongly debatable) point.

* * * *

ssociation between staircasing and conch-
y seem less far-fetched and fanciful in con-
n of the evidence adduced by Mr. Cook that
o had made a close study of shell-forms,
le many sketches of them—that, in fact, he
tically went to nature for inspiration in
s well as in art, because he had anticipated
n the habit of looking for the reason or pur-
natural forms. Nor did he seek it wholly
satisfaction of the mind," but rather with
ct of discovering structural principles to
might be able to give practical application.
less, we suspect that architects will gene-
nire Mr. Cook's ingenuity and discredit his
nd the attribution of the Blois staircase;
it seem highly probable that the study of
gy will be immediately added to the already
ed curricula of the architectural schools.

* * * *

g back to the " A.A Journal " War Special,
y be called, one notes with particular plea-
s. Webb's report on the operations of the
tive Service Committee, which is admirably
its twofold object of providing necessities
forts for architects serving with the colours
looking after the wives and dependents of
hanics who have been recruited from the
trades through the A.A. War Service
' In both these services the Bureau is doing
cellent work, and we are sure that Mrs.
convincing account of her stewardship will
meet with hearty and grateful approval, but
h the hearts of all who read it with an ardent
o afford her all the encouragement and
ce that so beneficent a work deserves. What
ially womanly work is being done in a beau-
omanly way, and nothing more need be said
nend it to the earnest attention of those—
ly the wives and daughters of architects—
e it in their power to render personal or
y help.

* * * *

eting of the London building trades unions
d on Wednesday last to consider the reply
the London Master Builders' Association to
cation for an increase of twopence an hour
the increased cost of living. It will be re-
ed that in their reply, which was published
o of last week's issue, the employers sug-
n extension of working hours—a method of
the new conditions without imperilling the
on its financial side. In other words, in-
getting something for nothing, the work-
uld earn the extra money which the
rs are very willing that they should receive.
ution of the problem the workmen seem very
t to accept, and we understand that they
submit the matter to arbitration by a Board
expert.

* * * *

summarised report of the meeting held by
kmen last Wednesday, it is said that " the
im that, as in other trades, an increased
ould be granted without their having to sur-
advantages which have only been obtained
ast as the result of hard struggles with the
." Obviously this is an argument which could be used with equal force—if it can be said to have any force—by the employers, were they not fully aware of its inapplicability to the exceptional circumstances in which the war has placed us. What the workmen apparently mean is that in the past they have fought for shorter hours, and are now asked to revert to a longer day ; but this view is surely fallacious on two points that seem to us to be of vital importance. In the first place, the shorter working day was conceded without a corresponding reduction in wages, and this advantage of equal money for less work the men would not forfeit if they accepted the present offer. They are not asked to work longer for the same wages ; they are simply required to put in more hours in order to give them the opportunity of earning more money at the same rate of pay. Secondly, there is no reason to imagine that the proposed readjustment is other than a temporary expedient devised to meet abnormal conditions. An explicit agreement on this point could no doubt be secured, but seems hardly necessary, seeing that long hours of labour are, on the whole, so profitless to the employer that he will be doubtless glad enough to take the earliest convenient opportunity of reverting to the shorter working day, because he knows that energy dwindles as the day lengthens.

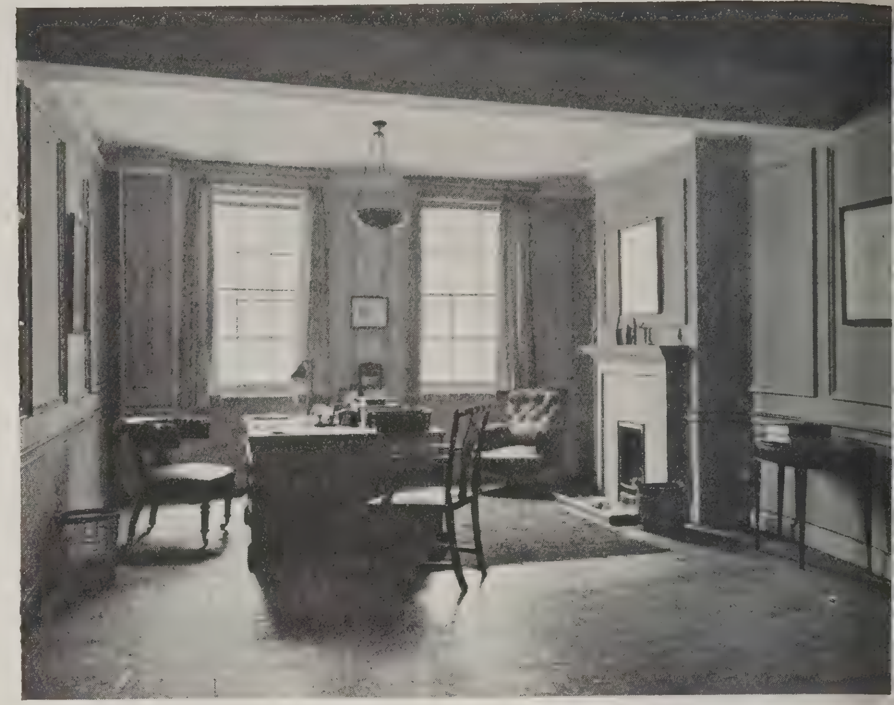
* * * *

A point which the workmen are probably disposed to regard as a principle is that overtime rates should begin at the close of the normal working day to which they have been hitherto accustomed. But overtime rates have been purposely, and often avowedly, made exorbitant with the express object of discouraging—one might almost say penalising—unnecessary protraction of the working day which the workman had wished to curtail rather with the object of diminishing unemployment than with the desire to enjoy more leisure. Now that surplusage of labour hardly comes into the question, Government needs absorbing nearly all the able-bodied men who are able and willing to serve their country either with the colours or in the manufacture or conveyance of the munitions of war, the case for the workmen seems narrowed down to their arbitrary refusal to put in a few more hours a week for which they would receive a fair equivalent in wages. We cannot see that in accepting this solution of the difficulty they would be surrendering any advantages. The sole sacrifice that, mainly or solely in their own interests, they are asked to make, is that of a little leisure.

* * * *

Demands by building operatives for increased wages are pretty general, but the request seldom soars above a penny an hour. In some instances, as at Blackburn, the demand is complicated with suggestions for revision of rules with respect to overtime and " walking time." The Blackburn dispute was referred to the Board of Trade, who have appointed Judge Parry as arbitrator. At Sheffield a joint conference upon the question of a war bonus was remarkable for the conciliatory spirit manifested on both sides, the employers expressing their sympathy with the workmen and regretting the impossibility of granting a war bonus. Private work in the district, the men were told, is being held up to the value of a quarter of a million; and the chief outcome of the meeting was a unanimous resolution to send a joint deputation to ask the corporation to put in hand the public work that is understood to be suspended and to grant an extra price on contract work. We welcome this joint action as a portent of the comparatively bland and amicable mood that befits the occasion and that is as applicable to London as to Sheffield.

OUR NEW PREMISES.

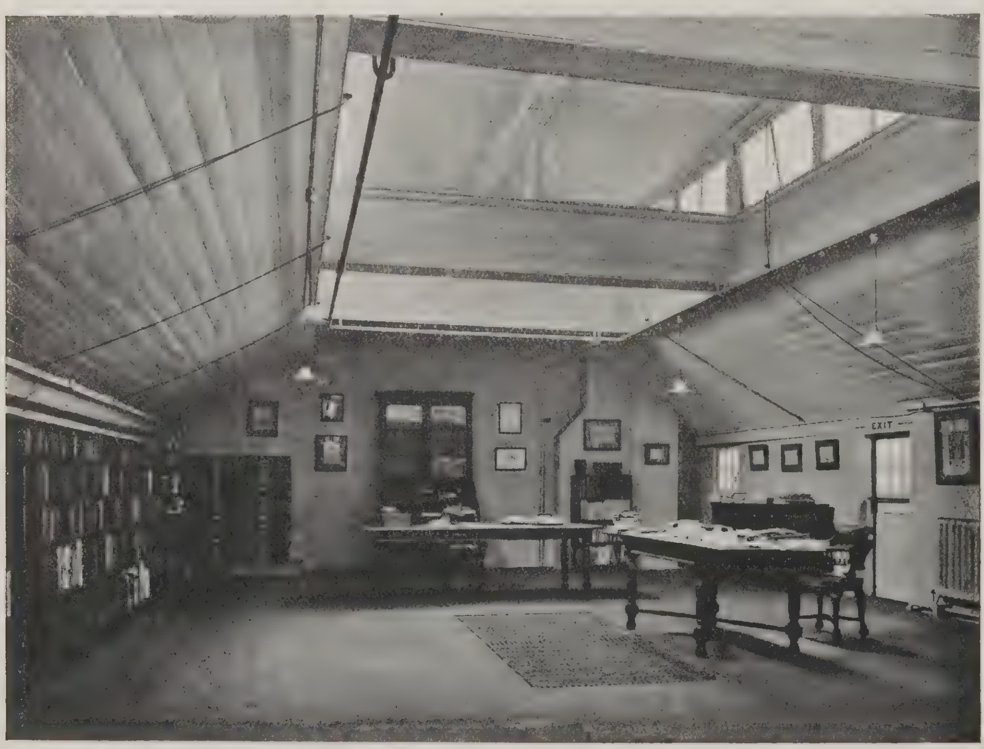


MANAGING DIRECTOR'S ROOM.

MESSRS. TECHNICAL JOURNALS, LTD., proprietors of this Journal and other kindred publications devoted to architecture and building, found it imperative last year to seek larger premises than those they occupied in Caxton House, Tothill Street, Westminster, in order that adequate provision might be made to cope with the continual growth of their undertakings. Ultimately they acquired an entire building on the opposite side of the same street. This building, of four storeys, had originally been two private houses dating from the early years of the nineteenth century. (Tothill Street, it may be noted in passing, was then quite a select residential thoroughfare.) The houses had been built on dissimilar sites, and about the year 1820 alterations were carried out with the object of converting them into one building, and at the same time a shop-front, practically as it exists at the present time, was added. Later, about forty years ago, further alterations were made, the yard space at the rear having then been built over, and a two-storey printing office provided. Until May last year the premises were occupied by The Abbey Press, and owing to the exigencies of business the floors had been cut in all directions to accommodate shafting and gearing for the printing machinery; the premises, moreover, had suffered to such an extent that they were in some danger of collapse. Consequently, Messrs. Richardson and Gill, the architects commissioned
to reconstruct the building to meet the requir
of Messrs. Technical Journals, Ltd., wer
fronted with a task of considerable difficulty,
however, they overcame with marked succ
may be seen from the illustrations in this issu

The façade displays the refined unobtrusi
racter of its period—that of the Regency; t
dows, which retain their old thin bars, being
in with a delicate moulding, and a well-propo
cornice extending across the top, forming an un
sky-line, while the treatment of the shop front,
slight pilasters and simple fascia, is admir
keeping with the rest of the design. The
is stuccoed, now painted a pleasant buff colo
the woodwork of the shop front is finished in
grey, with white lette
the fascia, the name
firm in the panel betw
first- and second-floo
dows being cut in let
good character.

There are two ent
one (on the left) leadi
the staircase hal
through that into th
lishing office at th
the other leading in
reading room, whic
sures 30 ft. by 15 ft.
latter shows an inte
architectural treatme
walls have plaster pa
which are hung som
prints of etching
Piranesi and Frank
wyn, and at the inn
is an attractive f
surmounted by a
convex mirror of th
Georgian period. The
(of which a detail is
on the plate in this is
enriched with an att
Greek fret ornamen
bead-and-roll border
tables and chairs



EDITORS' ROOM.

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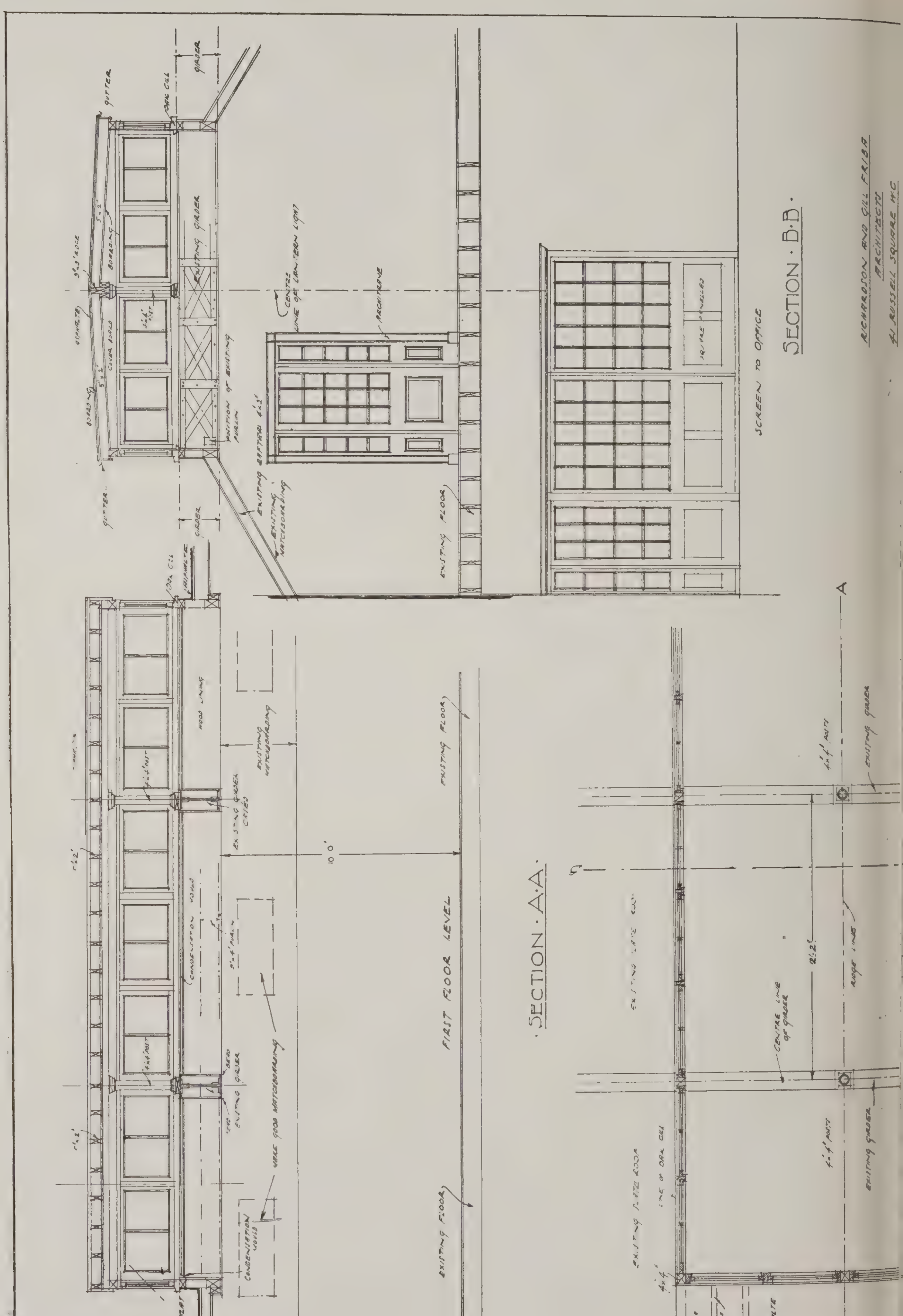
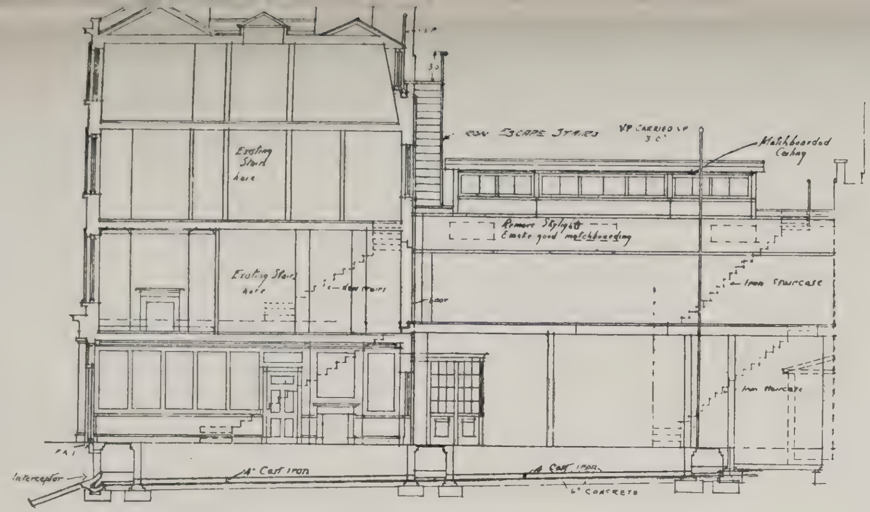
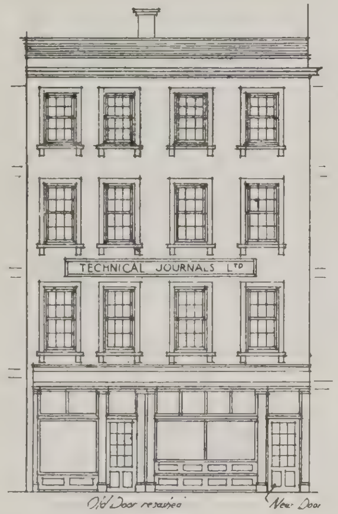
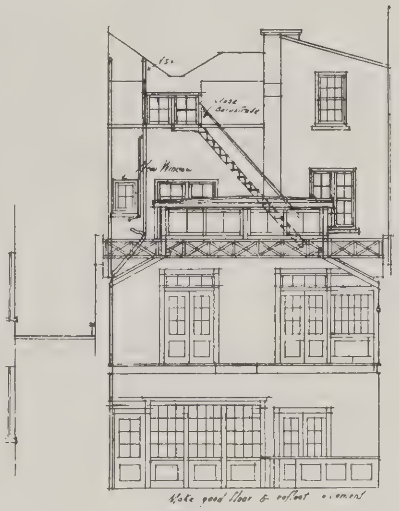

GUTTER
BOARDING
COVER BOARD
EXISTING GIRDER
GIRDER
OAK CILL
POSITION OF EXISTING PURLIN
EXISTING RAFTERS
EXISTING MATCHBOARDING
CENTRE LINE OF LANTERN LIGHT
ARCHITRAVE
EXISTING FLOOR
SQUARE PANELLED
SCREEN TO OFFICE
SECTION · B·B·
RICHARDSON AND GILL FRIBA
ARCHITECTS
41 RUSSELL SQUARE W.C
WOOD LINING
CONDENSATION TROUGH
CONDENSATION HOLES
NEW GOOD MATCHBOARDING
10'0"
FIRST FLOOR LEVEL
SECTION · A·A·
ASPHALTE FLAT
NEW ASPHALTE FLAT
EXISTING PLATE ROOF
LINE OF OAK CILL
CENTRE LINE OF GIRDER
21'2"
RIDGE LINE
A
A



SECTION



FRONT ELEVATION



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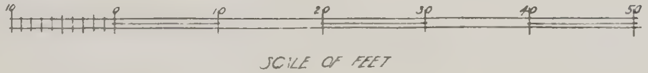

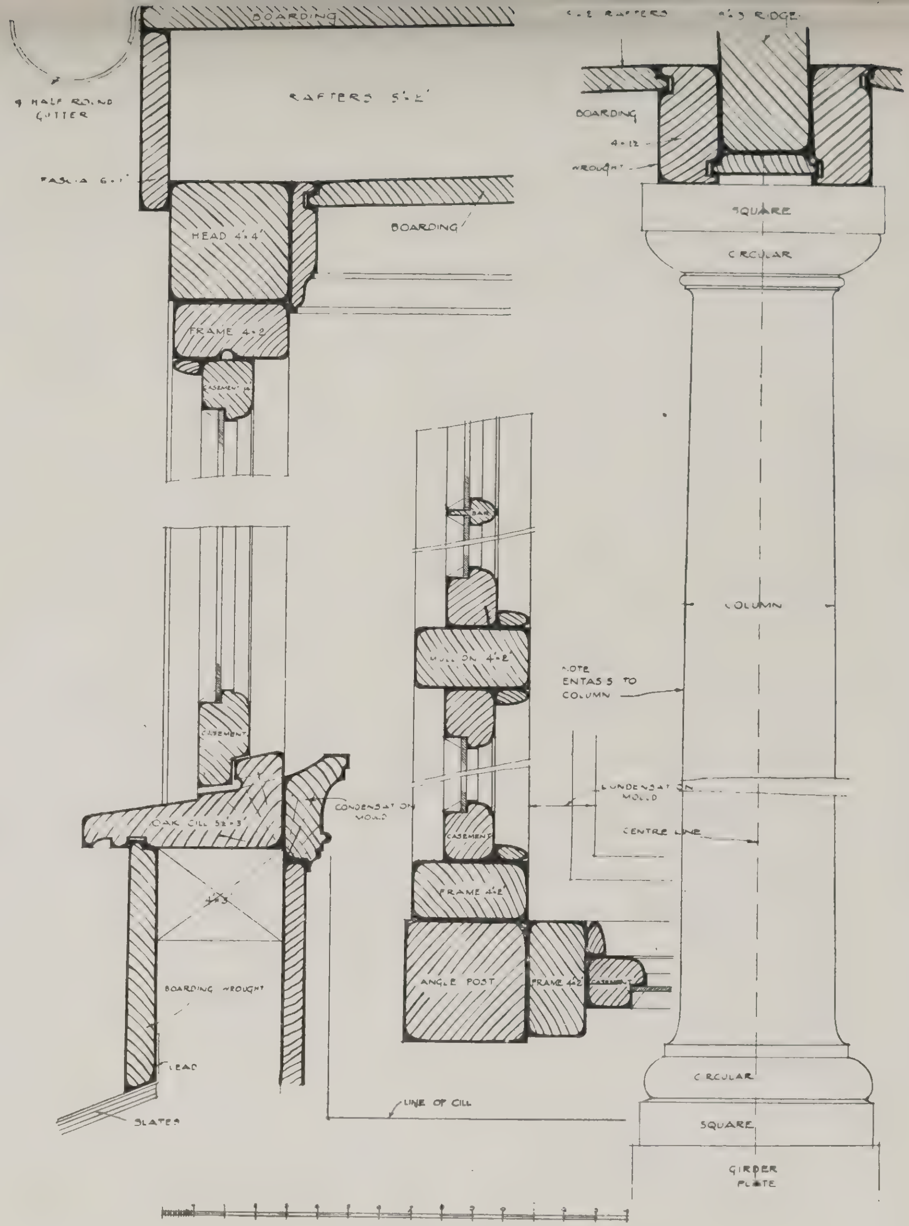

Details of Lantern Light.

WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (SERIES II.). VI.—Nos. 27-29, TOTHILL STREET, WESTMINSTER.

RICHARDSON AND GILL, ARCHITECTS.

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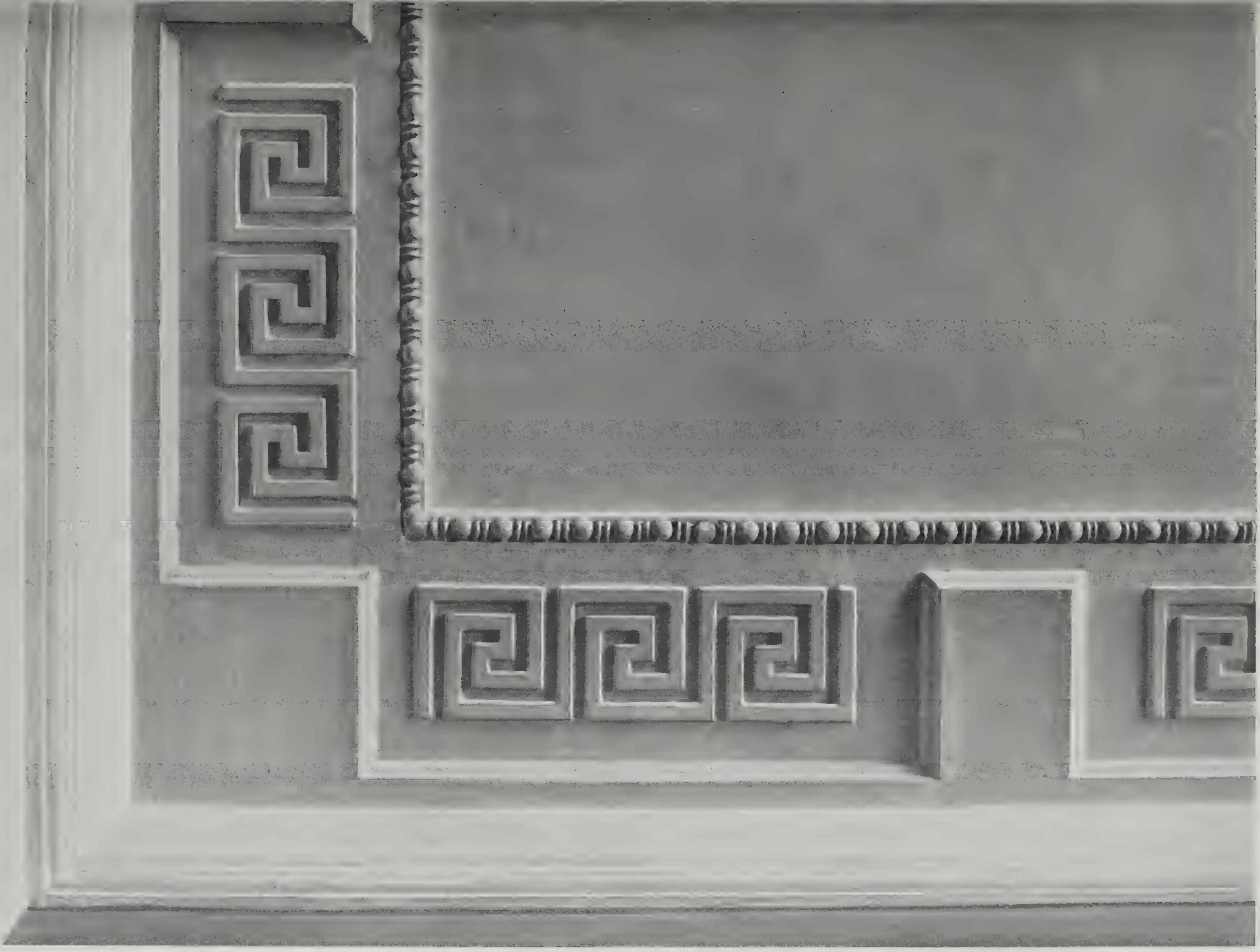

DETAILS OF CRAFTSMANSHIP. XVI.—CORNER OF READING-ROOM CEILING, Nos. 27 29, TOTHILL STREET, WESTMINSTER.

RICHARDSON AND GILL, ARCHITECTS.

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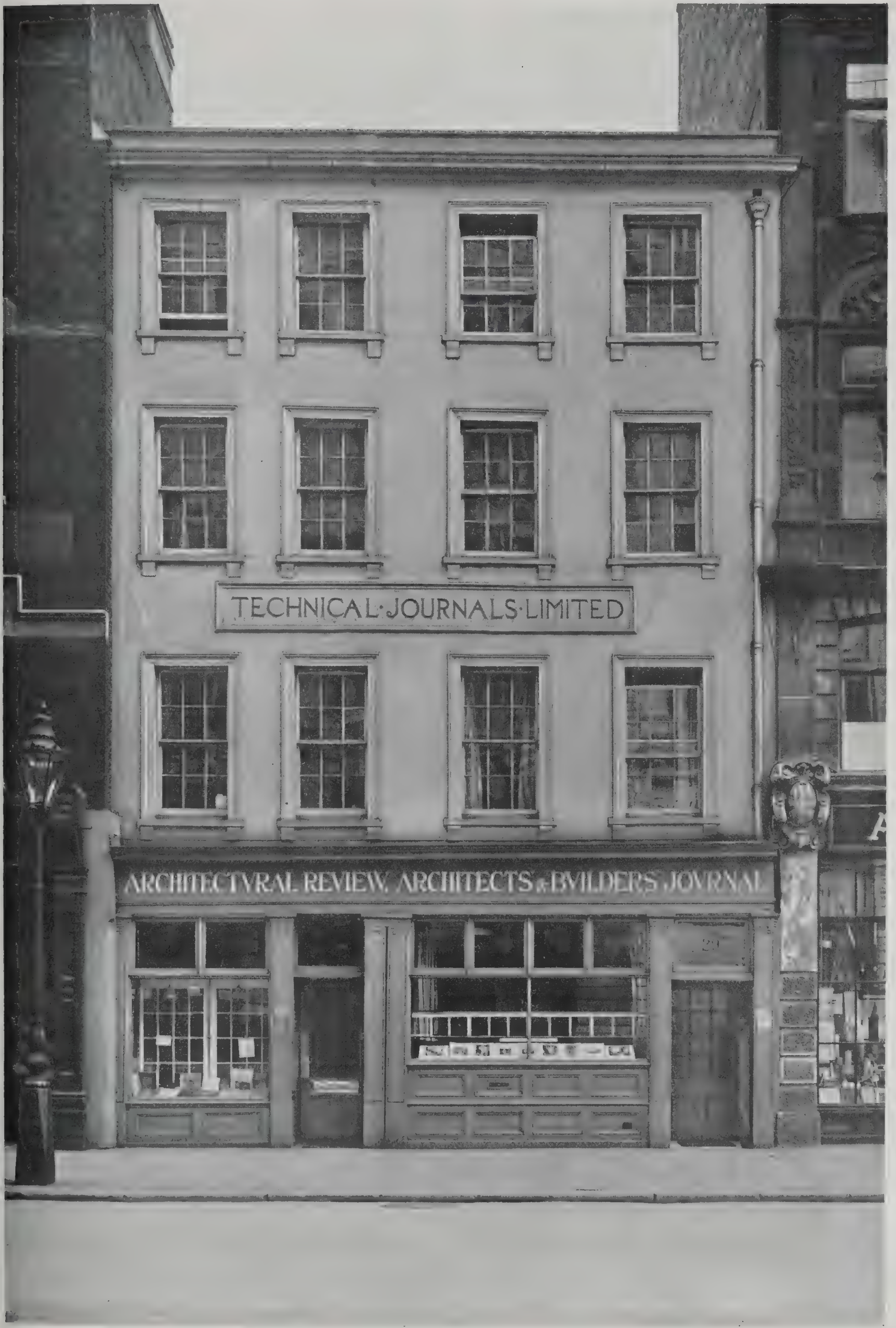
TECHNICAL·JOURNALS·LIMITED
ARCHITECTVRAL REVIEW. ARCHITECTS & BVILDERS JOVRNAL

CURRENT ARCHITECTURE (SERIES II.). XVII.—Nos. 27 29, TOTHILL STREET, WESTMINSTER.

RICHARDSON AND GILL, ARCHITECTS FOR RECONSTRUCTION.

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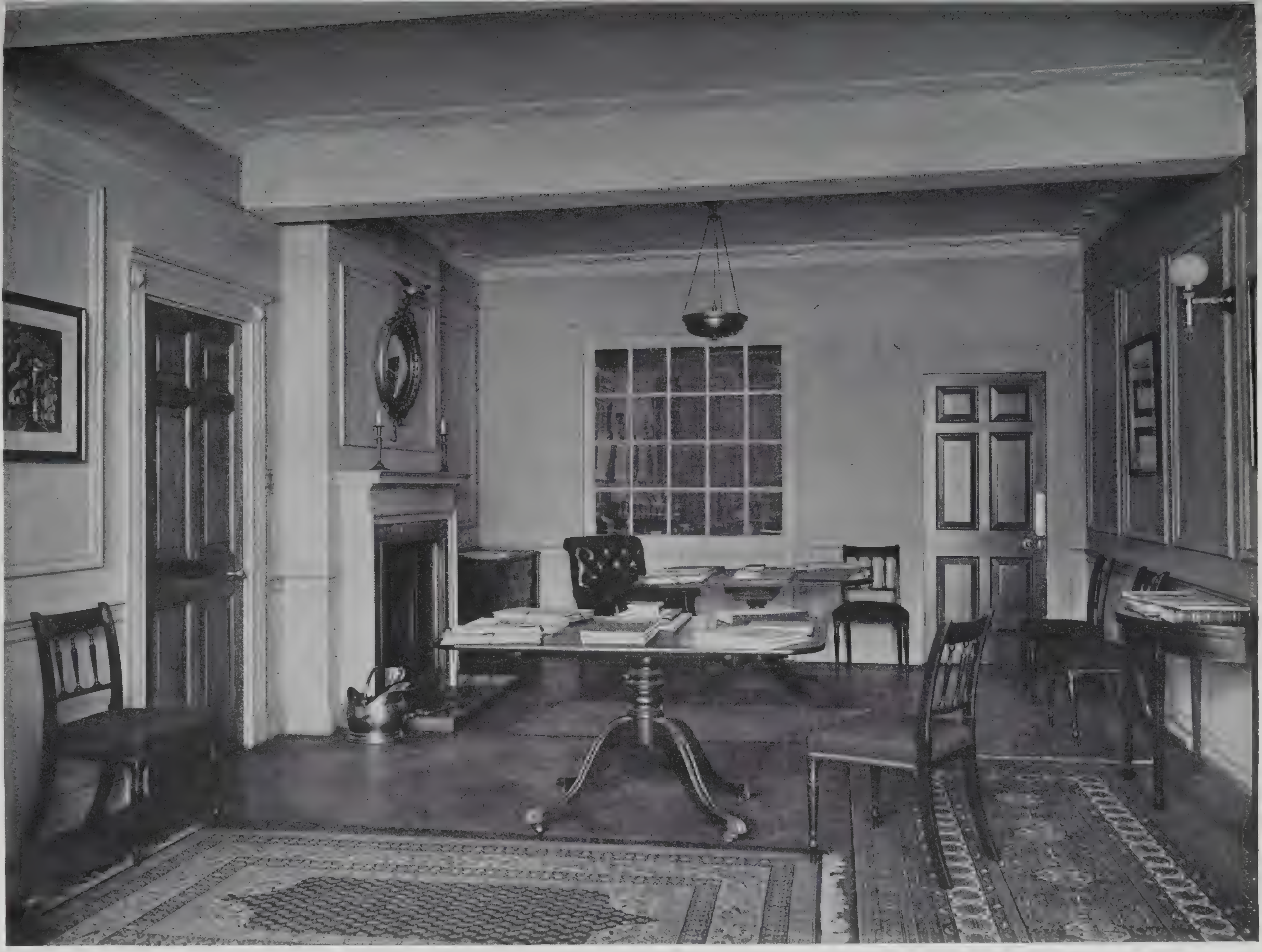

CURRENT ARCHITECTURE (SERIES II.). XVIII.—READING ROOM, Nos. 27–29, TOTHILL STREET, WESTMINSTER.

RICHARDSON AND GILL, ARCHITECTS.

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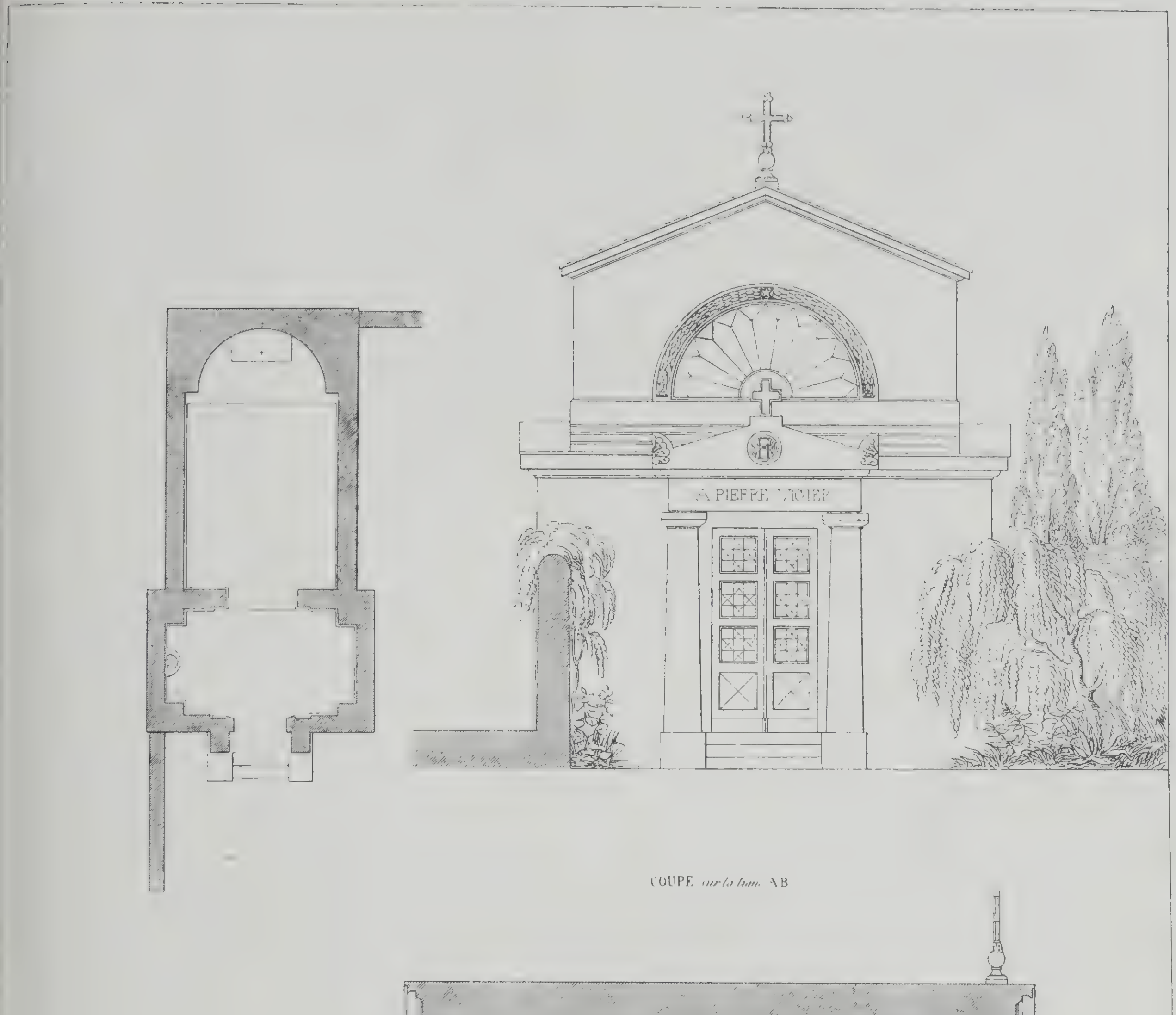

FRENCH MONUMENTS. XV.—MAUSOLEUM IN PARK OF CHÂTEAU DE GRANDVEAUX.

LECOINTE, ARCHITECT.

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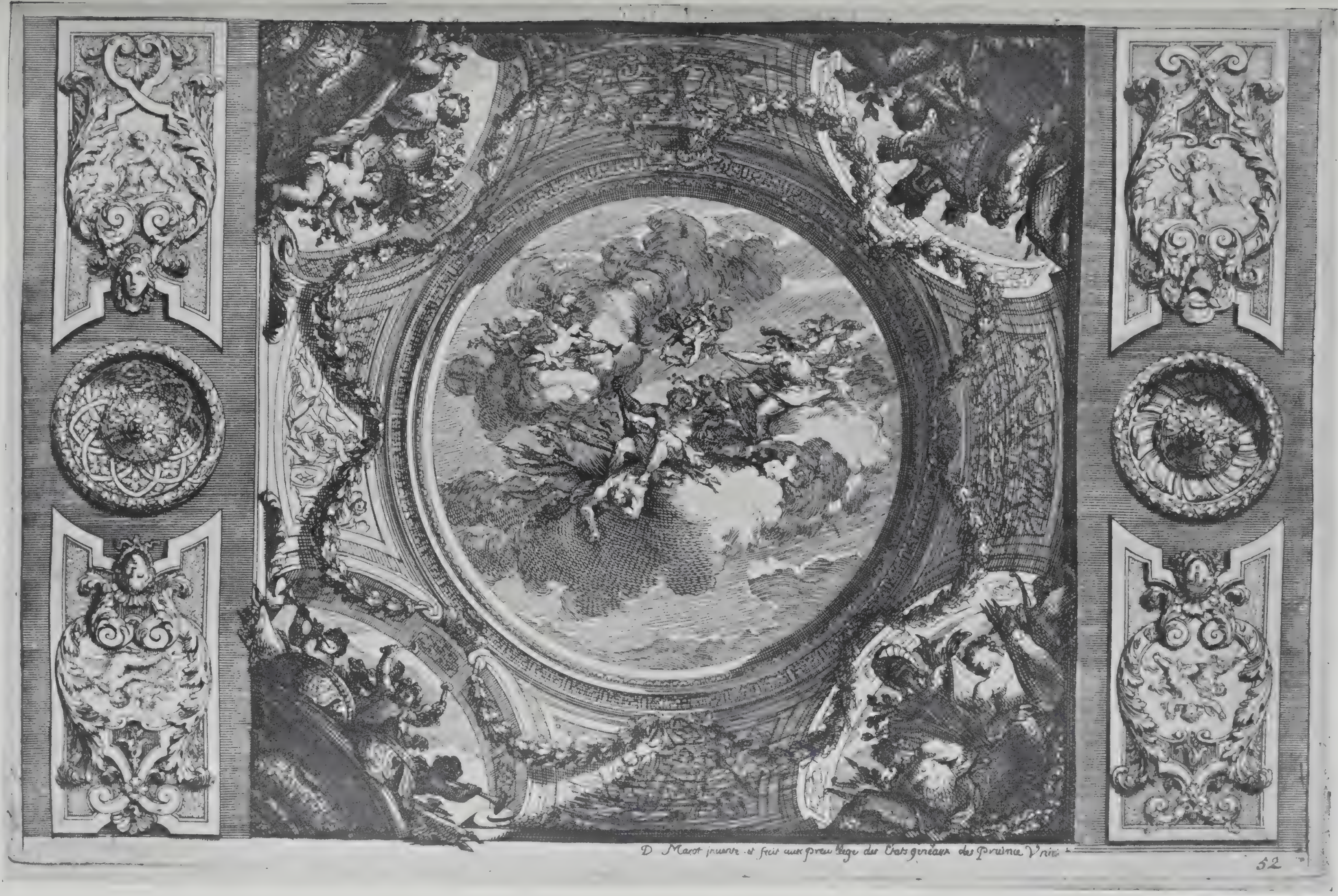
D Marot inuent et fecit avec privilege des Etats generaux des Prouince Vnie
52

DESIGNS BY DANIEL MAROT. VIII.—A CEILING.

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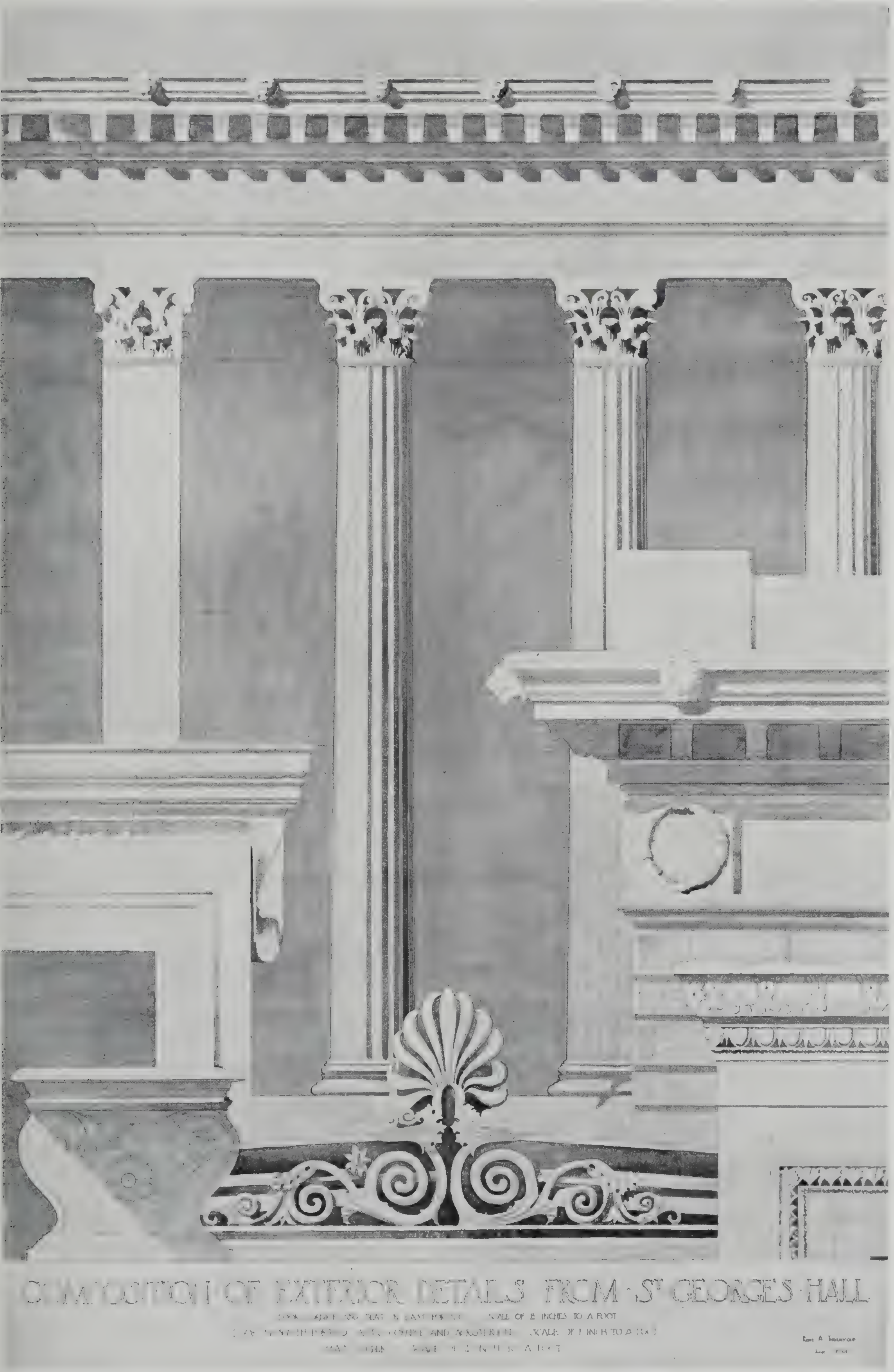
COMPOSITION OF EXTERIOR DETAILS FROM · ST GEORGES · HALL
SCALE OF 1½ INCHES TO A FOOT
AND ACROTERIUM · SCALE OF 1 INCH TO A FOOT
SCALE OF ½ INCH TO A FOOT
Robt A. Threadgold

STUDENTS' DRAWINGS. XLII.—COMPOSITION FROM ST. GEORGE'S HALL, LIVERPOOL.

BY ROBERT A. THREADGOLD.

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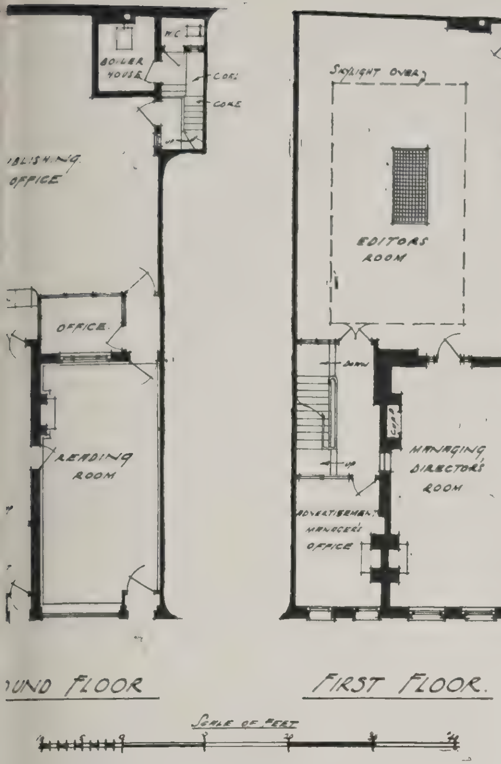

g with the general style of the room, to which of richness is given by Persian rugs on the lock floor. The convenience of subscribers een studied expressly in providing this room, can be used by them not only as a place they can consult copies of the firm's ations, but also as a rendezvous for others hom they may have business in London, and eir further convenience ample provision is or letter-writing.

n the entrance hall a fine oak staircase leads first floor. Here are provided, at the front, for the managing director and the advertise- manager, the former apartment being of imately the same size as and treated similarly to the reading room below, while at the rear is the editors' room. This is of spacious dimensions, being no less than 41 ft. by 26 ft.; it occupies the position of the "composing" room of the old printing office, a relic of which, in the shape of two lattice girders that supported the former skylight, had to be retained. These girders, now cased in with wood, serve to support the new lantern light. This has a flat top covered with asphalt, the lighting being through a range of windows extending all round the room.

The oak staircase continues up to the second floor, on which staff rooms and lavatories are provided, and a subsidiary staircase leads to the top floor, where are rooms for typists and storage rooms.

The general contractors for the reconstruction were Messrs. F. W. Blay and Co.

THE PLATES

Nos. 27-29, Tothill Street, Westminster.

These, our new premises, are described above.

Mausoleum in Park of Château de Grandveaux.

This embodies the tomb of Pierre Vigier. It is an interesting little building, both inside and out.

Ceiling by Marot.

Marot's designs for ceilings, shown in the book he published at Amsterdam in 1712, are examples of that sumptuous manner in which Verrio and Thornhill rejoiced. It is not a manner for everyday use, but in some situations—in theatres especially—its dramatic qualities are exactly what is needed. The design now shown is certainly a very brilliant composition.

Composition from St. George's Hall, Liverpool.

This drawing, by Mr. R. A. Threadgold, of the Liverpool School of Architecture, shows the main order, the attic cornice and acroterion, a door cornice and seat in the east portico, and a fragment of the door in the south portico; all displaying that strong character and originality in design which characterise the work of Elmes and Cockerell.

Ground Floor.

First Floor.

Nos. 27-29, TOTHILL STREET, WESTMINSTER: MAIN STAIRCASE.

ARCHITECTURE AT THE ROYAL ACADEMY.

UNENVIABLE is the task of writing any notice of the exhibits at the Royal Academy, but the architectural critic has only a single roomful of frames around him, and on that account can at least take heart as he sees his brother critic wander by wearily, for there are a dozen large rooms covered with canvases, and the assiduous consideration of so many acres of paint will surely strain the strongest eye-ball. Yet, even in this little haven in a corner of Burlington House are assembled a couple of hundred exhibits, of all sorts and sizes, and the critic, while hardened in soul against the familiar efforts of dull prosperous Fribas, must be ever on the look-out for the fresh genius. In dealing with the Academy it has become almost a law of the Press either to make a didactic selection of two or three exhibits around which the critic proceeds to write a homily, or to embark upon a painstaking consideration of one exhibit after another. These two methods I will shun, for the one gives no general impression of the Academy, and the other, though it saves the expense of buying a catalogue, foredooms the reader to ennui. I take refuge instead in a personal expression of likes and dislikes.

* * * *

There is no doubt that nothing is read with more avidity than a downright slating notice; people in general enjoy the contemplation of a conflict, whether, at one level of society, it is a virulent conversation between bargees, or, at another and a higher level, it takes the form of a diatribe against artists of the palette who, we are assured, would be better engaged with paint-pots. But that, too, is a profitless task, because where Art is, there is always difference of opinion on root principles, and so it is as easy to bring up the big guns of the Academy against the Post-Impressionists as it is for the latter to pound the R.A.'s. And, to a less degree, the same may be said of the Architectural Room. There is no touchstone, acknowledged throughout the profession, whereby each exhibit may be tried; and that being so, I am driven back to my likes and dislikes. It is a question regularly asked at the beginning of every May, "What's the Academy like?" to which the answer always is, "Not up to much"; but the exhibits continue to arrive in the same steady quantities annually, and there is scarcely an architect who is not eager to see his drawings hung; for, whatever may be the case with paintings, this is the only architectural show of any importance which is held throughout the year.

* * * *

To me, in looking around the room, there appears a too diverse attempt in all manners, though, recalling earlier exhibitions in the same place, it is evident that the dabbling in home-made styles on which we used to pride ourselves is yielding to a far more scholarly treatment on classical lines and a desire to achieve good taste in a quiet way than to arrest the attention with something bizarre and individual. Among the drawings I like is that of a South African house by Mr. Herbert Baker, shown, as many other designs in the room are, by a brilliant perspective by Mr. Walcot. It is very restrained in composition, presenting a garden front with a simple arcade at ground-floor level and projecting wings with shuttered windows and delicate balconies. Another good design is that for new municipal offices and town hall at Middleton, by Mr. Alick G. Horsnell, an illustration of which appeared in this Journal some time ago, when the competition was held. Mr. Ernest Newton shows a beautiful eight-scale drawing of a new bank in Lombard Street, the façade of which presents a very successful system of fenestration; on the ground floor are five arched openings, the central one occupied by the main entrance doors, while above, between brick
pilasters embracing three floors, are window
treated with leadwork—after the manner of
Newton's bank at Bromley; the whole being cro
by a good cornice, with an attic bearing a light t
trading of excellent design. Another succe
scheme is Mr. Dawber's Lord Wandsworth Instit
Hampshire, comprising three low blocks, a central
block with engineering and laboratory building
either side, all of one storey.

* * * *

Hung "on the line" at one end of the roo
Professor Reilly's scholarly design for the new S
of Architecture at Liverpool; the perspective,
ever, is somewhat enigmatic without a plan and s
—things that the Academy do not encourage,
which would show how a long top-lighted hall of
gives occasion for the large amount of unbroken
space. Mr. Arnold Mitchell, whom we are accust
to associate with houses and schools in a modern
of Early Georgian, takes us somewhat by surpris
his designs for new stations on the Chili and
Railway, long low ranges of buildings in the cla
manner of the *projet;* and the change is for the
Various competition designs, of course, have
their way into the room, more especially those f
new Board of Trade offices, and in looking ag
Mr. Vincent Harris's selected design one feels th
Norman Shaw influence on it—the range o
chimneys in particular—is not happy in its effe
more successful façade is Mr. Austen Hall's f
Metropolitan Water Board's new offices, of w
model, too, is shown, redeeming faults whi
exaggerated in the acute perspective.

* * * *

A prominent exhibit is the drawing of Sir
Burnet's Second Church of Christ Scientist, Ke
ton. The church itself, a square flat-roofed ma
a detached campanile, is a clever piece of desig
the arcade that extends out from one side of i
the street, is far too pompous for the occasio
scarcely knows what to do with itself when it co
the end of the little garden it is intended to e
and so falls unconvincingly into queer-
buttresses. Quite other is the new Church
Anselm at Kennington by Messrs. Adshea
Ramsey, a careful rendering of Italian Renais
but the perspective of the interior hardly
the impression that one is in South London.
speaking of churches mention must be made
Cecil G. Hare's fine design for the new cathe
San Francisco and Mr. Leonard Stokes's for t
cathedral at Georgetown. Mr. Gilbert Scott s
design for a new Catholic church at Northfle
gaunt tower of which is too insistent to be p
For the rest, I would say that there are two
palaces by Sir Ernest George; a scheme for the
of Coal Harbour, Vancouver, by Mr. Thor
Mawson, comprising a large round pond, aroun
are grouped a museum, a stadium, a restaura
children's playgrounds; Messrs. Adams and H
perspective of the new Royal Infirmary at Bris
Mr. Joass's of the new restaurant at the Zoo;
studied and scholarly competition design for
guildhall and municipal offices at Devonport
William Haywood; a strong perspective of th
entrance to new Government buildings in
Park, Cardiff, by Mr. R. J. Allison; and a mod
entrance gateway at Long Sutton by Mr. R
Blomfield: all of which serve as a tonic to co
the effect of a large dose of hybrid classical
for business premises, and designs for country
which are marvels of tile-hanging, half-timb
pantiles.

UB

CORRESPONDENCE.

itors disclaim all responsibility for the statements made or opinions
d by correspondents, who are asked to be brief, and to write on one side
the paper. Every communication must bear the name and address of
the sender.

The Government and the R.I.B.A.

e Editors of THE ARCHITECTS' AND BUILDERS'
JOURNAL.

s,—The opening paragraphs of the Editorial in
issue of April 21 display such an utter failure
preciate the present situation, and the proper
de under the exceptional circumstance of the
nt, that I feel bound to enter a protest against
ews there expressed.

s not my intention to defend other bodies whom
riticise, but the attack on what is described as
inveterate lethargy" of the R.I.B.A. demands
phatic refutation.

e facts of the case are clearly stated in the
ing paragraph from the Local Government
Circular:

. . "At the outset of the war there was
n to fear that unemployment might be wide-
d. The Government Committee on the Pre-
n and Relief of Distress suggested to local
rities that they should have in readiness
es for new works and buildings which could
t into operation in case serious unemployment
arise. Local authorities have in general
ded to this suggestion, and in most cases
schemes are ready or in an advanced stage of
ration. Happily, however, after the first few
, the trade of the country recovered from its
ation, and the enlistment of large numbers
n and the execution of war contracts have in
districts converted the problem to be faced
one of unemployment to one of shortage of
. In these circumstances an opposite policy
cated, and it becomes necessary to avoid the
ion of all new works, except such as are of
ng necessity either for reasons of public health
account of war requirements."

document from which this quotation is made
onsidered by the R.I.B.A. Council and the
ents made therein were confirmed from inde-
t sources. It was therefore evident that
er hardly such a course would bear on the
sions connected with building, it would be, if
reasonable, at least highly unpatriotic to
k on any action running counter to the
al requirements that labour should be, as far
sible, devoted to war needs.

t architects will be seriously hit by the present
on of affairs is undeniable, but the remedy is
be found in an attempt to combat a course of
which appears to have the strongest possible
ation. The Government has appointed a
Commission to enquire into claims made by
who have suffered loss through these special
easures, and has also met the application of
hitects' War Committee (in conjunction with
odies) very favourably, by agreeing to make
t to professional men who can take up em-
nt on such branches of civic survey work as
suited to their training and capacities.

shows that our rulers appreciate the difficul-
the situation, and it would ill become us to
ur professional needs the basis for an attack
urse of action which did not, as your Editorial
ts, emanate from "Civil Departments run on
rein," but which forms a part of the whole
ment policy.

H. V. LANCHESTER, F.R.I.B.A.

Lanchester proves rather too much, and the
ct of his letter is to confirm rather than to
our view of the situation. We should be the last to advocate any course that would run counter to national requirements, and our pages bear witness that we have been always ready and willing to give both the Government and the R.I.B.A. full credit for their good work. Nevertheless, we must hold that there are occasions when patriotism is better served by frank yet sympathetic criticism than by meek acquiescence. It is in this spirit, and none other, that our observations of April 21 are to be construed, and that we now add our opinion that Mr. Lanchester's "protest" is in effect a confession of weakness.—EDS. A. AND B.J.]

Comparative Strengths of Filler Floors.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—An article on the comparative strengths of R.S.J. "filler" floors and naked steel joists appeared in your issue dated March 31. It is a pity that the author did not push his inquiry a little further. The author shows in the example which he has selected that the filler floor has an increased moment of resistance of about 19 per cent. beyond that of the naked joist floor.

Now, assuming, in the example given, a superload of 100 lb. per square foot, and also in the case of the naked joist floor the usual timber joists, the bending moment of the filler floor will be found to be about 50 per cent. greater than that of the other type of floor.

DE SILVA.

The Cottage Committee's Report.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I was glad to read the article in your issue of March 31st last dealing with the report of the Committee appointed by the Board of Agriculture and Fisheries on Rural Cottages. It may be of interest to you to know my experience in this matter.

Nearly a year ago I was asked if a certain plan of mine might be published in the report, and after some correspondence I agreed. I heard nothing further about the matter until I received a copy of the report, and I was then amazed to see that ¼-in. scale sheets of my plan were offered for sale at a shilling each and specification at 1d. without my knowledge or consent.

This, as you say, is an entirely different matter from publishing a few plans to illustrate a report, the purpose for which my plans were to be used.

COURTENAY M. CRICKMER.

[It may be useful to note that this letter was received before Mr. Laurence Weaver's letter in last week's issue had appeared. We need hardly say that we are in full sympathy with Mr. Crickmer's point of view.—EDS. A. AND B.J.]

The "Journal" and its Imitators.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—May I congratulate you on the excellent tone and format of the A. AND B.J., also the quality of your loose plates?

I notice that you now have imitators in a contemporary journal, which testifies to the value of your enterprise.

W. CYRIL COCKING.

[This note, and the remarks by "Ubique" on the same subject in last week's issue, were written independently the one of the other, neither contributor having seen the other's communication.—EDS. A. AND B.J.]

PRACTICAL POINTS IN COTTAGE CONSTRUCTION.*

BY THOMAS POTTER.

Foundations.

THE first cost in building cottages is that of the foundations, and here a considerable saving may be sometimes effected. A layer of concrete over the entire area is always considered necessary to prevent damp ground-air from rising, and is often compulsory. If the loose earth or natural soil, which is sure to contain some form of plant growth, is removed for a few inches in depth, and dry, coarse rubble is deposited in its place and rammed, and four to five inches of cement concrete 1-5 is laid thereon and well beaten and, if the subsoil is not of the best, a few ¼-in. reinforcing rods are embedded therein, no better foundation is necessary. The concrete must be of a softish character—coke-breeze, boiler ashes, or crushed soft brick débris, for instance. This is not a new idea; the raft foundation, as it is called, has been adopted in practice for many years. If ever the raft subsides somewhat, it does so uniformly, and no cracks in walls or partitions result.

The raft foundation provides a base to which floor-boards can be nailed for living-rooms, and for granolithic paving for the remaining portions. This method makes a floor that is vermin-proof, fireproof, and rot-proof, and surely that is better than an expensive wood joisted floor on sleeper walls, which is neither. But linoleum must not be laid on floors of this kind—it will quickly cause dry rot in the boards. The concrete must be dry before the boards are nailed thereto, and as a rule there is ample time for this while the building is in progress. The Departmental Committee say a layer of bituminous material between boards and concrete is necessary. It may be so where the subsoil is a bog, but I have never known a case where it has been necessary, nor have I ever had a failure so far as I know, and I believe I was the first to adopt the system twenty-five years since. I have heard of failures, and on enquiry found that the concrete had only been laid a week or two instead of the necessary month or two.

Walls.

Walls form the largest and costliest factor in cottage building, and have been the subject of much disputation. Many kinds, other than those we are familiar with, have been suggested or patented within the last thirty years. They consist chiefly of wood framing, to which concrete or composition slabs are fixed.

I built some cottages at one time of light steel standards to which small iron bars were attached, and expanded steel lathing fixed thereto on both sides and plastered. There was not much difference in cost between these walls and ordinary 9-in. brick walls—about 10 per cent. less—but the weight was only 10 per cent. of brick walling, and the walls were always dry. The difficulty was, and is, that a man used to fixing metal lathing is required, and for remote districts this is a disadvantage. Developments in this direction seem possible. So far as I know, the only materials for walls in common use now are bricks, concrete, stone, and timber. No one would think of using galvanised iron, and the saving in cost would be but little.

Measuring Walls.

In connection with the measuring of and estimating for cottage walls it would be much simpler—more especially for comparisons of cost—to adopt the superficial yard as the standard, instead of the complicated calculations necessary with the standard rod, cubic yard, and other local forms. Brick walls 9 in. thick—or 11-in. with a 2-in. cavity—take 100 bricks per superficial yard, and if they can be delivered at, say, 30s. per thousand, lime 12s. per cubic yard, sand 4s. per yard, and labour and scaffolding 65s. per standard rod, the prime cost works out at about 5s. 2d. per superficial yard.

Stone Walls.

The cost of stone walls is more difficult to get at; the stone may be hard to work or the reverse, cartage may be a large item or stone may be obtainable on the spot. It rarely works out at the cost of brickwork. Owing to the unavoidable thickness of stone walls, the cubic capacity of a building is increased to obtain the necessary inside accommodation. If they are 17 in. thick there is a loss of 6 in. compared with 11-in. brick walls, which at 4d. per foot cube amounts to 1s. 6d. per superficial yard of walling.

Concrete Walls.

Concrete for walls of cottages is not so popular as it was thought at one time it would become, and for various reasons, whether built with cast blocks or monolithic. The latter is where the material is poured into moulds or frames of a temporary nature and made of wood. Both block and monolithic walls are easier of construction and cost less where there are fewer breaks and a lesser number of doors and windows than cottages require—as, for instance, farm buildings and others of a similar class.

As all window and door frames have to be built in and with cottages, these openings lessen the measurable area of the walls considerably, but increase the labour. It is not unusual in an estimate to include all openings in the superficial area of the walls, to compensate for the trouble and cost of fixing window and door frames. This applies to both block and monolithic construction, and as a result comparisons of cost are often in favour of brick or stone.

The cost of the timber and fixing and striking of wood forms for monolithic walls is considerable, and it can only be lessened if a number of similar or dissimilar buildings are required in the same neighbourhood, so that they may be used over and over again. Practically, it does not pay to build a pair of cottages with concrete walls unless there are others to follow or some other buildings to erect near at hand, and a capable and trustworthy carpenter foreman, who must be always on the job is available. Concrete construction must be made a business of, if it is to be satisfactory in every way. It has its advantages, however. Seven inches thick is ample for cottage walls, which are dry internally and of enormous strength, so much so that it often costs less to build a concrete wall than to remove it. Two to three days for a labourer to cut a doorway through a 9-in. wall with steel chisels and hammer is about the average in my experience.

Other advantages are that materials are to be found in almost any neighbourhood—even where their presence would seem to be very unlikely. I built a pair of two-storey cottages more than twenty years since, and, for want of anything else
able, with concrete made of soft chal
on the site and with concrete be
floors. They are perfectly dry, and
have been.

Wood Walls.

Wood framing, weather-boarded
outside and lathed and plastered
inside, has been advocated for
walls. Foreign timber is becoming
and worse in character and higher in
and some of the commoner qualiti
sess the elements of dry rot wh
ported; in fact, dry rot is becom
epidemic, and once it attacks woo
building, there is no telling to wh
tent it will spread. Walls of this k
quire a brick or concrete base abo
natural ground. Building with soun
of good quality, the cost at the prese
would be about 3s. to 3s. 6d. per sup
yard, with the brick or concrete
add. Then there is the cost of pe
painting or tarring, inside lathing
a brick or concrete wall does not
danger from fire and dry rot, extra
insurance, the difficulty of selling
taining loans on mortgage, and the
of providing a harbour for rats, mi
other pests.

Roughly, the superficial area of th
of a pair of cottages is 240 yards. an
difference in first cost between b
concrete walls and wood walls is 1
yard, the total saving in first cost
be 240 × 1s. 6d. = £18, or £9 a
but the probability is it would be
average, considerably less. So far
experience goes, there are no m
known at present for agricultural la
cottage walls, all points considere
suitable than bricks or concrete.
are never likely to cost much less
present, and any cheapening in wal
to the option of concrete in some
other, and this might result if the
matter was thoroughly gone in
systematic way and at some cost.
sent the high price of cement is ag
use of concrete, but this conditio
likely to be permanent.

Partitions.

Inside partitions of cottages sh
possible, be solid. All hollow p
cottages should be avoided: on
knows what may find its way the
only exception is hollow brick
ternally.

Concrete slabs, 2½ in. thick,
ground floor, are of ample str
carry the wood floors above, and
do very well for the upper floors
should be made of coke-b
procurable, owing to its light
which door jambs and othe
work can be nailed without
in wood bricks or using woo
The prime cost is about 1s.
2s. a superficial yard for making
to 4d. for fixing, which compare
ably with half brick walls costing
3s. 6d. a yard, and in addition t
saving in space. They are easily
wood moulds, and can be finishe
enough to render plastering un
where economy must be practise
stud partitions, lathed and plast
the worst features in a cottage—
easily damaged, dangerous in ca
and afford a retreat for domestic

Roof Coverings.

For roof coverings slates and
their own as a rule. There are t

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* Extracts from a paper read before the Society of Estates Clerks of Works. The introductory portion of this paper was given, under the title "Some Salient Factors of the Cottage Problem," in our issue of March 10, page 114.

ted materials, and many kinds of
overings, but unless there is
of at least twenty years' wear and
of maintenance cost, it is doubt-
ther any great saving can be
Cost of maintenance is an im-
feature in labourers' cottages
ave to be let at other than an
c rent.

Concrete Roof.

oncrete roofs have been suggested
for years past, and if they could
on indefinitely to keep out water
being asphalted, roofs of this
r would cost less than wood and
tiles. There is testimony that
ve remained sound for several
n the other hand, they have failed
cases, and eventually had to be
d. The cause is this: Concrete,
other building materials, expands
racts with change of temperature,
is estimated to be an eighth of
in every 30 ft. for a variation of
es of temperature. But this can
olled to a great extent by inserting
m of reinforcement therein which,
ss exposed to climatic changes, is
ted so readily, and this prevents in
the effects of temperature changes
ncrete. But temperature changes
rolled in another way—by super-
heavy loads on the concrete. To
my meaning, concrete walls of
seldom give evidence of change of
ure by reason of the heavy load
and roofs which they support, and
o, it is usually near the top, where
is least. This is proved in the
enclosure and other walls of
height carrying no load. Tem-
cracks invariably commence at
and die away before reaching the
owing to being controlled by the
f the upper portion. The cause of
led me for a long time. Concrete
t being loaded, or only to a small
re practically slabs of concrete un-
d by any—or but little—super-
nt load, and in addition are more
to climatic changes than walls.
rcement saves the roof from
sulting from temperature changes
time, but eventually the constant
aving a weakening influence,
nsue, perhaps not for some years,
ing will ever prevent these cracks
ening and closing with climatic
Evidence given before the De-
al Committee was to this effect,
remedy stated was to tar and sand
, a common practice, the effect of
owever, lasts only a limited time.
n flat slabs of a similar character,
in footpaths, paving, etc., are to
everywhere. If there is one thing
eeded in a cottage, it is that the
made watertight, and no liberties
taken in this direction.

Skirtings.

gs in cottages should be of cement
wants painting, cement does not.
apt to get dry rot, and mice easily
ugh it. The only objection I ever
cement skirting is that it is liable
amaged and come away from the
his is not my experience. But
cement angle fillets, about $1\frac{1}{2}$ in.
nd chamfered, do quite as well as
the only object of which is to
he plastering from damage by
d table legs. This is another
onomy. Where cement slab pa-
e used—which are practically un-
ble—both skirting and fillets can
rded, provided they are not

Doors.

What are known as 6 ft. 6 in. by 2 ft. 6 in. by $1\frac{1}{2}$ in. square panel doors are the best for internal purposes. They are less subject to warp, twist, and shrink than ledge doors, and cost but little if any more.

Cupboards.

A small cupboard in an angle in each bedroom is an advantage.

Dresser.

A small dresser with drawers and shelves over, a dwarf cupboard, if means permit, and a fall-down table against the window in the living room are all well worth their small cost. The fall-down table is extremely useful for many purposes, and affords the housewife, when employed thereat, an opportunity of seeing the bright side of things through the window.

Shelving.

Sufficient shelving is necessary in the scullery and larder, and a peg rail with school board hooks in the lobby and also in the scullery. If these are not provided the doors will be utilised by driving nails therein for hanging coats and cloaks thereto.

Larder.

In planning, the larder door should not be in the scullery or living room, as is almost invariably the case, but in the lobby. Soft foods, such as butter and cheese, and milk, rapidly absorb impure gases generated where food is cooked; perhaps washing is performed and the rooms are occupied for hours at a time by the family with all doors closed. A towel roller on the back door and blind rollers or curtain rods to the windows are essential.

Windows.

Windows may be the ordinary sash or casements. My experience of cottages with windows of each kind is that casements are more draughty, more difficult for keeping out drifting rain, and more readily damaged, and children are apt to sustain injury through the casements, when open and left unfastened, being blown to by a sudden gust when their hands are resting on the sills.

At Braintree lately the council built some cottages with casement windows and, being unable to let them, sought the cause from various women who were wanting cottages. The reason given was they did not like casements. A lady some time since spent some months in inspecting the cottages and ascertaining the views of the tenants in connection therewith in numerous villages in the eastern counties, and invariably she was told they preferred sashes.

Sink.

A sink in the scullery should be fixed on iron brackets. If supported by brick piers the resulting corners and angles hold dirt and dust, and between the piers is a conveniently hidden place for the slop pail, house flannels, scrubbing brushes, etc. Iron brackets expose these to view, and a better place is as a result found elsewhere. Canadian latches are suitable for all inside doors. Cement jambs and frieze and wood mantel to the living room, and cast-iron grate and mantel in one piece for bedrooms; the latter should be of the cheapest description, as they are rarely used, except in cases of sickness.

Ventilation.

The plea that fireplaces are wanted for ventilation is negatived in my experience by the fact that bags of straw are often pushed up the flues to prevent down-draught. So with ventilators, whether in walls or ceilings—I never saw one yet but what was covered with paper.

Chimney.

If the chimney stack is arranged to serve all the fireplaces of a pair of cottages, brickwork is saved and the chimneys are less liable to smoke than if in outside walls.

Drains.

Drainage is entirely a matter of circumstance; probably the best arrangement is for a large bucket to be placed outside and under the sink outlet pipe, to be emptied over the garden when full. Hidden drains to a labourer's cottage—except there is a main sewer—are always a trouble and a nuisance, but rural by-laws, if any, must be respected.

Bungalow.

The bungalow form of cottage is finding a good deal of favour in some parts, and possesses many advantages over the two-storey cottage. It costs no more, usually somewhat less. To the housewife its advantages are that there are no stairs to scrub and for children to fall down, and as, according to Dr. Vivian Poore, the labour of raising the body vertically is twenty times that of walking on the level, each time she goes upstairs she has expended as much strength as would be necessary in a straight walk of 180 ft. There being no wood joisted floors and no wood partitions, there is less danger from fire and dry rot.

Conclusion.

Mr. Runciman's scheme for the Government not only to supply plans for cottages but to become builders, merchants, and supply the materials, is open to criticism. According to Mr. Chiozza Money, M.P., builders' merchants and manufacturers make a profit of 30 to 40 per cent. on the materials they supply—news which will cause some of that class to open their eyes.

As a matter of fact the principal materials—bricks, stone, tiles, sand, and lime—are local products, and to those who can pay prompt cash are obtainable at prices which leave but a moderate profit and which are, as a rule, purchased direct from the manufacturers without the middleman's profits. How the Government can supply them for less, establishment expenses included, if the business is to be run on commercial lines, seems somewhat of a puzzle.

The windows, doors, and other joinery, and the ironmongery, seem to be about the only things in which a profit could be made by buying wholesale. The joinery of a pair of cottages, including ironmongery, costs about £38, and washing boilers, baths, ranges, bedroom grates and mantels, e.c. fittings, sinks, etc., £20, altogether £29 per cottage. At present cutting prices it is doubtful whether the Government could compete in cost with merchants who deal in those classes of goods—when carriage and establishment expenses, as with every other business, are taken into consideration.

Foreign timber merchants say that their business is cut so fine now owing to competition that prices are at the lowest. It is not probable that it would answer the Government's purpose to import timber and establish timber depôts in various parts of the country, only for the purpose of supplying it for cottages and small holdings, and if from one depôt, the carriage to remote parts of the country would probably make it cost more than timber importers can supply it at with no middleman's profit to deal with and with, in many cases, less carriage to pay.

SPECIAL LEGAL REPORTS.

Action Against Builder and Decorator for Alleged Negligence.

Jennings v. Beaton.

April 13. King's Bench Division. Before Mr. Justice Atkin.

This was an action by Mrs. Jennings, a lady residing at Carlisle Mansions, Victoria Street, against the defendant, a builder and decorator, carrying on business in Pimlico for damages for alleged negligence.

Mr. Rayner Goddard, for the plaintiff, said his client claimed damages from the defendant by reason of the injury caused to certain of her property through a large picture, which the defendant had contracted to hang for her at her flat, falling. Plaintiff's allegation was that the picture in question had been negligently hung by the defendant or his workmen, thus causing the damage complained of. Plaintiff, who was a widow, had lived all her life in Paris, and in October, 1913, she, with her husband, a doctor, who had practised in Paris, came to reside in London and took a flat in Carlisle Mansions, Victoria Street. Plaintiff then engaged the defendant to do, among other things, the hanging of pictures upon the walls. This work the defendant, by his workmen, did on October 30 and 31, and November 2, 1913. When the plaintiff was away in Scotland in the following July a large picture, which the defendant's men had hung in the drawing-room, fell, smashing a marble-top table and some china and doing damage, as the plaintiff alleged, to the extent of £45.

Evidence having been called in support of the plaintiff's case,

Mr. Fraser, on behalf of the defendant, contended that the damage was too remote, that the defendant had not in the circumstances been guilty of negligence, and that the action did not lie.

In the result his lordship gave judgment for the plaintiff for £31 10s. damages and the costs of the action.

Strand Widening: Claim to a Party Wall.

Appenrodt v. London County Council.

April 15. Court of Appeal. Before the Master of the Rolls.

This was an appeal by the plaintiff from a judgment of Mr. Justice Eve, in the Chancery Division (see our issue of December 3, 1913).

In the Court below the plaintiff asked for a declaration against the Council that the east or flank wall, being the external wall of 75, Strand, commonly known as the Adelphi Stores, was his property, that such wall was not, and never was, a party wall, and that the defendant had no estate or interest in such wall, and, further, that in pursuance of an agreement between the parties the plaintiff was discharged from all obligation thereunder, and he sought a declaration that he was entitled to certain windows. Defendants contended that as tenants in common they were entitled to an undivided moiety of the wall projecting alongside the Hotel Cecil, or the major part of it. Mr. Justice Eve came to the conclusion that the plaintiff had failed to make out his case, that he was still the owner of the wall, or that the defendants had no estate or interest in it. His lordship accordingly refused to make the declaration claimed and from that decision plaintiff now appealed.

Mr. P. O. Lawrence, K.C., Mr. Clayton, K.C., and Mr. Repton appeared in support of the appeal, and Mr. Maugham, K.C., and Mr. Attwater for the respondents.

After hearing the arguments of counsel, the Court allowed the appeal, and held that the wall in question was the property of the appellant and that the Council had not, in the circumstances, and upon the evidence, any easement in or right of support from that wall.

Appeal allowed, with costs.

Light and Air Dispute.

Swabey v. Roberts.

Chancery Division. Before Mr. Justice Eve.

This was an action by the Misses E. and A. Swabey, of Louth, Lincs, against Mr. E. E. Roberts, also of Louth, for a mandatory injunction restraining him from interfering with the ancient lights of 63 and 65, Eastgate, Louth. The plaintiffs were the freeholders and occupiers of No. 63 and the freeholders of No. 65, where Mr. G. Swabey resides.

Mr. Clayton, K.C., and Mr. D. Pollock appeared for the plaintiffs, and Mr. H. Cozens-Hardy, K.C., and Mr. Wood for the defendant.

Plaintiffs' case was that in December, 1913, defendant purchased a piece of land bounded on one side by No. 65, and proceeded to pull down the old buildings on it in order to build a picture theatre, which the plaintiffs alleged would seriously interfere with the light of the courtyard and windows of both houses. Plaintiffs gave him notice that if he went on with the building of the theatre according to the prepared plans they would take proceedings against him. In April, 1914, he began building and he put up a wall extending the whole length of No. 65, which was now 22 ft. 8 in. high. Prior to that the plaintiff's rooms were well lighted, but now the light was substantially interfered with and damaged.

Evidence for the plaintiffs was given by Sir William A. Gelder, M.P., F.R.I.B.A., F.S.I., of Hull, Mr. E. E. Bentley, F.R.I.B.A., of Grimsby and Louth, and Mr. F. W. Reggall, auctioneer and estate agent, of Louth and Brigg.

Defendant's case was that his plans for the theatre were inspected by the plaintiffs' solicitors weeks before he began to build, and they knew that a high wall was to be built. He did not admit that before the wall was erected the rooms were bright and well lighted or that the wall obstructed any light at all. The plaintiffs had not suffered any damage, and even if they had any cause of action they had by acquiescence disentitled themselves to an injunction.

The witnesses for the defence were Mr. W. R. Gleave, A.R.I.B.A., surveyor and architect, St. Peter's Walk, Nottingham, Major R. H. Fowler, F.R.I.B.A., architect and surveyor, of Louth, and Mr. Herbert Thompson, builder and contractor, of Louth.

Judgment was given for the plaintiffs for £120 damages, but his lordship declined to grant an injunction, as it appeared to him that the plaintiffs knew for a long time the defendant's intention to build the wall. Plaintiffs were awarded the general costs of the action.

[This action was tried on March 4, and as it establishes no new conclusion, we have hitherto hesitated to give space to it; but on reconsideration we think that the point mentioned by the judge as to the plaintiff's knowledge of the defendant's intention to build the wall, and the consequent refusal to grant an injunction, is of sufficient importance to be placed on record.—Eds. A. and B.J.]

COMPETITIONS.

School, Rosyth.

In the competition for an el
school to be built at Rosyth for
fermline School Board, the
awards have been made: 1, Mr
Motion; 2, Mr. James T. Scobie
and 4, Mr. Scobie and Mr. Dav
ridge—all of Dunfermline. Mr.
to superintend as architect the bu
the new school, which is not to
immediately, and the other co
named take premiums of £20,
£5. The school will comprise
classrooms and accommodate
children. Mr. Motion's estimat
cost is £15,181.

Tuberculosis Hospital, Sout

In this competition, seventeen
designs were submitted, and the
awards are announced: 1, Mi
Brockbank, Southend; 2, Mr.
Manchester; 3, Mr. J. J. Gree
chester. The author of the desig
first is to be appointed the archit
building.

LIST OF COMPETITIONS

May 10. — Housing, White
Corporation invite designs for la
site and erection of houses. A
design placed first to be empl
architect, or otherwise to re
guineas premium; second p
20 guineas; third, 10 guineas. C
(£2 2s., returnable), The Boro
veyor, Town Hall. Whitehaven.

May 31.—Laying-Out Grou
University of Western Aus
Designs are invited for the layi
the grounds at Crawley, Perth,
Australia. Premiums, first, 100
second 25 guineas. Drawing
reach the Registrar, University
not later than May 31. Docume
ing to the competition may be se
offices of the Agent-General for
Australia, Savoy House, Stran
For particulars see our issue of
p. xiv.

No Date. — Municipal Bu
Stepney.—Designs are invited by
Borough Council for new
buildings. Particulars from Mr
Clarke, Town Clerk, 15, Great Al
Whitechapel, E.

No Date.—Small Hospital,
haven.—Designs are invited by
Joint Hospital Committee for
hospital. Apply Mr. E. B.
Union Hall, Whitehaven.

No Date. — Cottages, Che
Designs for cottages on the Bron
Estate, Cheshire, are invited by
Lever Brothers. Particulars of
premiums offered were given in
of March 17, p. xiv.

"AN INTERESTING ROO

In the article on this sub
page 201 of last week's issue,
sentence should read: "The acc
ing illustrations show a very in
roof over a garage yard at Ha
which has been designed and er
the London County Motor Co.,
Messrs. Croggon and Co., Ltd.,
230, Upper Thames Street, Londo
The omission of Messrs. Croggo
was, of course, quite unintentio
was, in fact, the result of one of
accidents that must occasionally
the best regulated printing office

NG UNUSUAL FLOORING CONDITIONS.

ovide more than 200 per cent. addi-
oor space for a rapidly growing
, so as to give as rapid possession
ole and yet not interfere with their
business, was one of the problems
olved in the new sixteen-storey
s of the National Cloak and Suit
y, in New York.

wners found that it was worth a
al to have as few columns as pos-
these buildings, on account of the
of machinery required for distri-
rders and the need for better light
re usable floor space.

girders in this building are all
d to set east and west, with no
north and south between interior
. By means of this design the
r header runs north and south at
t wall of the building, and the
lines run continuously across the
near the ceiling without having
any girders, as is so often neces-
loft building design. These
are all made up of a pair of 28-in.
, and the floorbeams are all 12-in.
except for the first floor and roof.
teel framing throughout is typical
lass of building and consists prin-
of Bethlehem rolled sections for
and floorbeams, designed for a
l of 120 lb. per sq. ft. on the floors.

hoice of floor construction was
at after great deliberation, involv-
discussion of costs and adaptability
at-ceiling cinder-concrete arch, the
ile arch, and the beamed ceiling of
oncrete. The least expensive
ave been the cinder-concrete floor
beamed ceiling. However, it was
ecessary to adopt the flat-ceiling
tion, owing to changes continu-
ng made in the arrangement of
ck, machinery, etc., for which the
al cost of extensions and altera-
the electrical, sprinkler, and ven-
systems might be very large. The
nying figure shows the alternative
for hollow-tile and flat-ceiling
oncrete construction, and it may
l that the former is 32 lb. per sq. ft.

Considering the relative costs of
ow-tile and cinder-concrete arches,
the additional load on the steel
o bottom-construction cinder-
, the question was decided in
f hollow tile.

loor construction is somewhat un-
in that the flooring is 1½ in.
n maple, and also in the method
ng a bearing for the sleepers on
der-concrete by means of metal
The flooring, of which there were
ft. b.m., was very difficult to get,
this thickness has seldom been
fore. The company which finally
to execute the contract had so
ifficulties that it resolved never to
nother order of this kind.

iagram shows the floor construc-
rly with the exception of the bear-
s. Twelve inches apart on the
of all sleepers flat metal strips
ick by 2 in. wide by 6 in. long were nailed in order to give additional bearing on the cinder-concrete. The top of all cinder-concrete was level with the top of the sleepers, and the top surface received a coat of water-proofing compound. The flooring was damp-proofed very carefully and allowed to dry thoroughly before laying. Mr. I. E. Detmars was the architect and Messrs. Weinkopf and Burroughs were the consulting engineers for the steelwork, the contractors being the Bing and Bing Construction Company, of New York.

SOCIETIES AND INSTITUTIONS.

Design and Construction of Industrial Buildings.

At an ordinary meeting of the R.I.B.A. on April 19 Mr. Segar Owen, F.R.I.B.A., read a paper on "The Design and Construction of Buildings for Industrial Purposes." He said the factory architect was offered many great problems, and only in the case of prohibition through cost was he ever supposed to be confronted with the impossible. The middle of the nineteenth century saw the greatest activity in factory undertakings, and produced buildings of a dull, uninteresting, but of a solid and heavy type. These were as a rule constructed of local material, and in none of them did it appear as though any great thought had been expended on the convenience of employees. What a change between these factories and those erected during the last twenty to thirty years! These modern factories were bright, open, thoroughly ventilated, and with administrative conveniences which added materially to the well-being of the employees.

The most marked change between the early factories of the nineteenth century and the present time is not, however, only due to the better housing of the employees, but to an entirely different mode of construction and material employed in the buildings themselves. The older factories were of small spans as regards covered area, with wooden roof principals and floor beams, and with more or less adequate fire-escape arrangements. Timber was the usual and practically the only material to bridge large spans; bricks and mortar the usual wall construction; slung floors were usually of timber; special beams cast-iron, columns of the same metal. With the introduction of iron—and, at a later date, steel—spans increased rapidly, until to-day they were almost unlimited. Floor girders and joists, wall stanchions and roofs were of steel. But perhaps the greatest changes in modern factory construction have been brought about by the introduction of steel and concrete, used together for walls, roofs, and floors, and combined in such a way that almost any peculiar form of building necessary to a certain process could readily be carried out.

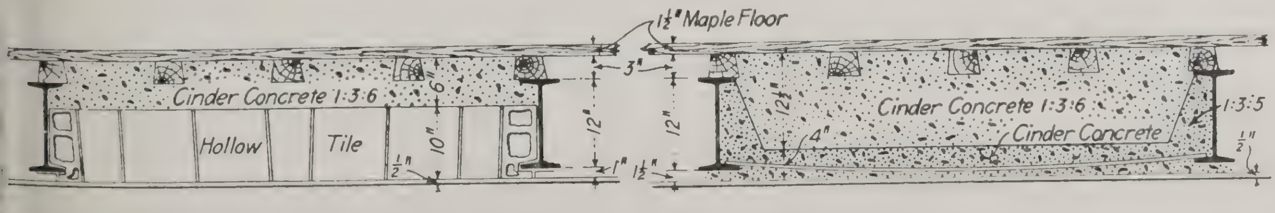
The various buildings comprising the usual factory undertakings might be roughly stated as follows: Office and administrative department, raw goods stores, general factory buildings, warehouses for finished goods, power plant buildings, including boiler-house, etc., attendant and by-product buildings.

The aim in the planning of such a factory must be the arrangement of these various buildings, and the departments comprised in each, in such order as to ensure the passage of the raw materials, entering from one, two, or more sources of supply, through the successive shops until the goods reached their final state and were stored in the warehouse for distribution to the customer. This passage of the articles under manufacture must, if possible, be arranged without re-entering or re-crossing departments through which in course of manufacture they had previously passed. Such a process in many cases meant a simple arrangement for passing the goods from one side of the building to another or from the top of a many-storeyed building to the bottom, but in factories where the goods were partly manufactured or handled in the various shops and completed or assembled in others, the scheming to bring each department successively within touch of the other required care and thought in planning; and for this purpose it was essential for the architect to make himself generally acquainted with the process of manufacture in each case.

Proceeding to offer one or two observations on the planning of some of the departments mentioned above, Mr. Owen said the administrative department generally included the following: Time and wage office, cloak-rooms, bath-rooms, and latrines, clothes drying-room, rest-room, surgery, manager's and clerks' offices. This block must be placed at a point most convenient to the factory building it served and in such a situation as to allow of the rapid distribution of the workpeople to the several departments in the building. Such position might be either the corner, the side, or in the centre, and as far as possible arranged so that the workpeople could reach their own particular work by galleries or passages, without traversing the floors of a shop in which they were not engaged. The relative position of the administrative block with the works entrance was not of importance except that where possible sidings should not have to be crossed by the employees.

In considering the several and usual forms of present-day construction, Mr. Owen remarked they had the following offered them for choice: Brick structure wholly, with wood or cement floors, and with wooden or steel roofs; steel and brick composite buildings, with wooden or slung concrete floors, steel or wooden roofs; steel structure; reinforced-concrete structure.

It was safe to say that the composite building was the one most universally in use. It offered a varied field for all classes of factory and was capable of dealing satisfactorily with the greatest of all former troubles, namely, the large spans and heavy loads. There was, however, a newer form of construction that demanded very serious consideration, and that was reinforced concrete. The earlier promoters, for reasons best known to themselves, desired to treat the architect as neither knowing nor wishing to know any-



AN UNUSUAL TYPE OF FLOOR CONSTRUCTION.

thing of this science of building. That it was a wonderful science was undoubted, and its ready acceptance on the Continent and abroad had enabled many regions of the world to be brought almost into the heart of commercial life. To his mind, bridge construction, riverside piers, jetties, retaining walls, silo buildings, cooling towers, culverts, and the more peculiar forms, were the lines upon which reinforced concrete found its particular outlet. One hesitated to accept this form of construction for the average factory on account of the many changes that were constantly being made, especially as regards machinery. These changes invariably led to the cutting of floors, rearrangement of loads and points of support, and one could not get away from the feeling that during these changes the cutting of a main member might possibly mean a partial collapse.

The lecturer proceeded to discuss the details of factory construction, including flooring, roofing, provision of windows, doors, etc., and finally dealt with the power plant buildings. In conclusion he referred to the experience he had gained in working out factory problems for Sir William Lever at Port Sunlight and elsewhere.

Sir William Lever, in moving a vote of thanks to Mr. Owen, said he would like to see some cheapening of factory building. It was a remarkable fact that the processes inside the factory had become enormously cheaper; every time they put in new plant or machinery they were able to produce things cheaper, but the price per cubic foot of the buildings was steadily increasing all the time. They were building factories to-day much more solidly than was necessary. The constant changes in machinery meant constant changes in the structure of the factory, and in some cases the scrapping of the building. In his opinion there was only one type of building suitable for factories, and that was the concertina type, in which only the outside walls were a fixture, all the others being of a temporary nature and easily torn down. The question of the price per cubic foot should be reduced to a more scientific level. He had found it vary in different parts of the country from 3d. to 8d., and he supposed they might take the view that at the present advanced price of materials 3d. was the irreducible minimum. But the fluctuations above this might largely be avoided if architects thoroughly made up their minds as to the most economical forms of design. There was no greater handicap to production than an expensive factory building. He suggested that architects should specialise in the different types of industrial buildings as they already did in various styles of house architecture. London was far and away the greatest manufacturing centre in the kingdom, but it was being handicapped by the London Building Regulations, which, for one thing, imposed a needless multiplication of interior walls that made central control impossible.

Architectural Association of Ireland.

The annual general meeting of the Architectural Association of Ireland was held on April 27 at 15, South Frederick Lane, Dublin. The retiring President, Mr. H. Allberry, in his valedictory address, dealt with the effects of the war upon the progress of the Association. He alluded with pride to the number of members who had joined the Colours, and remarked that, in spite of all difficulties, the Association had enjoyed a successful season and preserved its stability.

In their eighteenth annual report the committee expressed regret that the progress of the past few years had not been fully maintained. In common with other professional societies, the Architectural Association had found its activities curtailed in various directions by the effects of the war. The total number of members was now 110. In the absence of many of the younger members on active service, the committee ultimately decided to abandon the class section of the programme. As a result of frequent interchange of views between the officials of the Irish and English Architectural Associations, a mutually satisfactory arrangement was reached, under which members of each receive certain direct advantages from the other society, including a common employment register. The following members had felt it their duty, and had been able, to join the Colours: Messrs. A. W. Reid, F. Shepherd, C. H. Mitchell, A. Brady, C. D. B. Ward, W. MacLaren, P. L. Dickinson, H. S. F. Clay, D. M. Turner, Cyril Keefe, and J. E. Burke. The last-named had been mentioned in despatches.

The prizes were awarded as follows: Institute prize, and also Downes bronze medal, Louis F. Giron; special prize, Thos. Walsh; President's prize, A. E. Jones; Vice-President's prize, W. A. Dixon.

On the walls of the meeting room were displayed the drawings submitted for the prize competition by students. The work was of excellent quality, surpassing in merit, indeed, that seen on previous similar occasions.

The officials elected for the ensuing year are: President, H. G. Leask; vice-president, Hubert J. Lundy; hon. secretaries, L. F. Giron and W. A. Dixon; hon. librarian, T. L. Cullimore; hon. treasurer, G. F. Beckett; committee, H. Allberry, J. Geoghegan, F. Hayes, W. A. Scott, T. F. Strahan, A. E. Jones, B. V. Callaghan, and G. G. Lynes.

NEWS ITEMS.

The Government and Industrial Organisation.

At a meeting of the Birmingham Chamber of Commerce last week, the President, Mr. H. W. Sambidge, criticised the Government arrangements for the organisation of industry. The War Office, he said, had attempted too much. If they had devoted themselves to the armies and left to business men the organisation of industry, it would have been much better. The Government's arrangements must necessarily dislocate ordinary business, but every interest must give way to the supply of the needful munitions of war. It was announced that £3,000 had been subscribed towards the guarantee fund of the International Trades Fair to be held at Birmingham.

Three New A.R.A.'s.

At a general assembly of Academicians and Associates, Mr. Edgar Bundy, painter; Mr. Charles L. Hartwell, sculptor; and Mr. Glyn W. Philpot, painter, were elected Associates of the Royal Academy. Mr. Edgar Bundy has been for the most part a costume painter of the period of James II. Last year, however, he had a success with a modern scene, and perhaps owes his election to this work. Mr. Glyn Philpot some years ago showed remarkable precocity in pictures that reminded one of the work of Mr. Charles Shannon. Since then he has become a fashionable portrait painter with more taste and invention than
most fashionable portrait painters
Mr. Hartwell has been a frequen
tor at Burlington House. Hi
group, "The Mountain Path,"
much attention two years ago.

Increasing Cost of Timbe

A proposal by the Highways C
of the Westminster City Counci
chase 700,000 wood blocks f
Wandsworth Borough Council le
discussion last week. Lieut.-Col
ford Probyn remarked that the
timber had gone up, and was goin
further. The Chairman of the C
(Mr. E. Howley Sim) said it w
not be so much a question of w
would pay, but of getting any s
all. The proposal was adopted.

Treasury and the Road Bo

The County Council Associat
meeting in London last Thursday
a resolution protesting against th
ment of the Treasury that the Ro
should make it a condition of a
wards the improvement of certa
that they should be satisfied as t
quate maintenance of other road
which they have made no grant.
solution also expressed the opi
the Road Board grant for 1915-1
the scheme previously sanction
use of improved materials upon
important main roads ought
largely reduced in order to reliev
liamentary votes for war purpos
cost of the Road Improvement F
the charge of remaking roads des
military traffic.

The Garibaldi Monument at

To-day, May 5, has been fix
date for unveiling the bronze mo
Quarto al Mare, near Genoa, by
tor Signor Baroni, which has be
to Garibaldi's "Thousand." A
the veil falls a choir of a thousa
will sing the "Hymn of the
tion." Signor d'Annunzio, th
will then speak, standing beneath
statue of Garibaldi. The procee
close with the singing again of th
of the Resurrection." It is exp
after the ceremony an immense
will march past the monument a
large number of associations
part, coming from all parts of Up
Medals will be presented to the
of the expedition of the "Thous
inscription upon them being con
Signor d'Annunzio in classic styl

The Regent Street Quadr

It is stated that the announce
the Norman Shaw design for th
tion of the rebuilding of the Qu
practically abandoned has been
with relief by the Regent Street t
They have not, however, been
with regard to the amende
which is being prepared by the C
veyor. These firms say that if t
representatives insist upon p
huge buildings with heavy stone
the Piccadilly Hotel, they would
to remove their shops elsewher
contended that Regent Street,
pended for its business on the
its shop windows, has already
greatly from the action of the Cr
lords, and Oxford Street a
thoroughfares have greatly profit
have pointed out that when the
design for the Piccadilly Hotel
pared the shop rentals were val
well-known firm at £30,000 pe
When the Crown insisted on th
design this valuation was prom
drawn, and the rentals valued
more than half the first figure.

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20, Budge Row, Cannon St., E.C.

PROJECTED NEW WORKS.

Hospital Extension, Nottingham.

Nottingham City Council have agreed to an extension of the Isolation Hospital at Bagthorpe at an estimated cost of £4,500.

Slipper Baths, Willenhall.

Willenhall Urban District Council have under consideration a scheme for the erection of slipper baths.

Workmen's Dwellings, Bangor.

Bangor City Council have adopted a scheme for the erection of twenty-four houses in the Sackville Road.

School, Cowdenbeath.

A new school is to be built at Barclay Street, Cowdenbeath, by the Beath School Board, at an approximate cost of £10,000.

School, Coventry.

Coventry Education Committee have selected plans for, a large new school in Folly Lane to accommodate 1,200 scholars.

Houses, South Kirkby.

The Hemsworth Rural District Council have approved plans for twenty-two houses for the South Kirkby, Featherstone, and Hemsworth Collieries, Ltd.

Theatre, Galashiels.

Mr. S. H. Lawson, Licentiate R.I.B.A. of Emerson Chambers, Blackett Street, Newcastle-on-Tyne, is preparing plans for a new theatre at Galashiels.

Council Offices, Ellesmere Port.

The Ellesmere Port (Shropshire) Urban District Council are seeking power to borrow £5,500 for the erection of new council offices.

School, Rosyth.

The Dunfermline School Board have received competitive plans for a new school at Rosyth. The building is expected to cost £20,000.

Baths, Wombwell.

The Local Government Board have held an enquiry into an application of the Wombwell Urban District Council for permission to borrow £1,450 for the provision of public swimming baths.

Houses, Selby.

The Riccall Rural District Council have passed plans for sixty-eight houses for the Selby Transport and Warehousing Company, Ltd., in the new industrial district of Barlby.

Town-Planning, Dumbarton.

Dumbarton Town Council have decided to make application to the Local Government Board for authority to prepare a town-planning scheme in areas east, west, and north of the burgh.

Generating Station, Barton.

The Manchester Electricity Committee are in correspondence with the Treasury authorities in regard to a scheme to erect a generating station at Barton at an estimated cost of £800,000.

Town Planning, Colne.

It is understood that the Local Government Board have given authority to the Corporation of Colne to prepare a town planning scheme under the Housing, Planning, etc., Act, 1909, in respect of an area of about 876 acres in the borough.

Town Planning Scheme, Lanarkshire.

The Middle Ward District Committee of Lanarkshire intend to make application to the Local Government Board for Scotland for authority to prepare a town planning scheme for an area of land situated in the parishes of Cambuslang and Old Monk land. The proposed scheme embraces the districts of Newton, Carmyle, and Baillieston.

Housing, Wallsend.

Wallsend Town Council have adopted plans prepared by Mr. E. Cratney, Licentiate R.I.B.A., 88, Station Road, Wallsend-on-Tyne, for the erection of houses as follows: Two-room dwelling-houses, 68; three-roomed dwelling-houses, 136; four-roomed dwelling-houses, 68; and self-contained houses, 14.

Plans Passed, Easington.

The Easington (Durham) Rural District Council have passed the following building plans: Additions, North Road, Wingate, Thomas Glass; Wesleyan Church, Easington Colliery, the trustees; two houses, Gale Street, South Hetton, Mrs. Baker; two cottages, Haswell, Mr. R. Spark; temporary wooden shop, Station Town, Mr. G. Hutchinson; four houses, shops, and club premises, Shotton Colliery, Mr. J. McCullach; and fifteen cottages, Blackhall Colliery, Mr. T. Lawson.

GLASGOW WORKMEN AND WAR SERVICE.

At a meeting of Glasgow Town Council last week, a deputation was received from the Glasgow District Building Trades Standing Committee and Glasgow Trades Council relative to the letter received from the Local Government Board as to the organisation of the labour forces of the country during the present national crisis, and the carrying out of any schemes for work involving capital expenditure, and the instructions of the Corporation thereanent. Mr. Shaw, speaking on behalf of the joiners, said that the effect of the suggestions in the letter would, in their opinion, have a very serious effect on the building trades, and would cause considerable hardship and privation. So far as the recommendation of the circular was concerned, it simply indicated that men engaged in the building trade would be induced to join the army. He pointed out that so far as the building trade was concerned, it had supplied its quota. In regard to the manufacture of munitions of war, they thought the Government could have organised the engineering trade better than had been done. To ask painters, plasterers, masons, and joiners to do that kind of work would be absurd. He pointed out that in Springburn and elsewhere there were engineering works that were not employed in manufacturing munitions of war. He asked the Council to reconsider their position. Mr. Armour, for the masons, said that some of the delegates present could produce figures that would astonish the Council. In his trade they had not a large available supply of young men for recruitng purposes. For the last ten years they had been taking on no apprentices at all. Before the war broke out they had not twenty-five apprentice masons in Scotland. There were not six in Glasgow at the present time. Practically every available man of military age had been taken up. It seemed to him a strange way of getting recruits to throw out of employment men who were not of military age. He produced Board of Trade figures to show that there was a decrease in building plans of 24.9 per cent. compared with last year at this time. The Lord Provost assured the deputation that there would be no stress if the Town Council could avoid it. The deputation then withdrew.

OBITUARY.

Mr. Alfred Bainbridge.

Mr. Bainbridge, builder and con
who died recently at Great Bro
Yorks, had erected many buildings
town, and had for some years h
appointment of builder on the
Estate of Lord De Lisle and Dudl

Mr. Thomas William Dows

Mr. T. W. Dowsett, who was a
in the Honourable Artillery Compa
was killed in the trenches on Jan
at the age of twenty-three, was a
of the R.I.B.A., and had been an
in the office of Mr. Leonard Stoke

Mr. John Acton.

The death has taken place at K
of Mr. John Acton, at one time
builder and contractor in the mid-
district. He built numerous man
Cheshire for city merchant prin
had a good connection as a
builder.

Mr. James Martin.

Mr. James Martin, who has die
fast at the age of sixty-seven, was a
of the late Mr. John Martin, who
chairman of the firm of H. and J.
builders and contractors, Mr.
Martin having been manager of th
branch, known as the Leinster W

Mr. J. A. Johnson.

Mr. John Alfred Johnson, archi
civil engineer, has died, aged sixt
Wigan. After completing his
with Messrs. Naysmith, Wilson,
bridge builders, of Patricroft, he
out many important works in that
He was a Past-Master of the
Lodge of Freemasons, Wigan.

Mr. Edward Hetheringto

Mr. Hetherington, builder a
tractor, who has died at the age
seven, is said to have done more
in York than any other contractor
present, and was therefore
employer of labour. He was
respected member of the York
Builders' Association.

Mr. Edgar G. G. Down, A.R.

Mr. Edgar G. G. Down, A.R.I.
died on April 16, was a former pre
the South Wales and Monm
Architects' Society; he was also a
for this Society for some years.
the architect for several buil
Cardiff and District, amongst wh
the Presbyterian Church, Cathedr
schools at Ely (both of which h
competition), premises for the
Bavarian Brewery; Phœnix B
Docks, Cardiff; and numerous ot
ness premises, and domestic wor
district, including a large house
Leonard Llewellyn in the Rhondd

Mr. W. T. Grewcock, A.R.I.

We regret to announce the dea
William Thomas Grewcock, A.
architect and surveyor, which too
Bournemouth on April 27. M
cock, who was only forty-seven
age, had held the offices of secre
treasurer of the Leicester and
shire Society of Architects. He
a member of the Leicestershire
tural and Archæological Society.
the work he carried out was the re
tion of the Hinckley Workhouse
erection of the Hinckley Sa
He had also designed a number
holding buildings for the Leic
County Council.

ELECTRICAL NOTES.

Electrically-Operated Park Gates.

e recorded in our issue of April 14, p. 179, the Witton- r Electric Tool and Hoist Company have constructed gear for operating a fine pair of park gates, with large pillars, by electricity at a country house in the North land. A more detailed description of the operation of ates can now be given. There is a small tunnel under es in which is housed the operating gear, comprising a e-power motor, geared through a clutch to a mechanism ning and closing the gates. The electric plant belong- the house supplies the current, and the controlling switch nted in the neighbouring garage. When the circuit is the motor is started up and a solenoid is energised, operates a clutch and thereby connects the motor with e-opening mechanism. The clutch, being always open he motor is not working, permits of opening or closing es by hand if desired. Before leaving the garage the ur opens the gates by remote control. After driving h he signals by means of the horn to anyone in the if the gates are to be closed immediately, and a similar is given for opening the gates on the return journey. gates were constructed by Messrs. Lockerbie and son, Tipton, Staffs.

A Fire-Damp Detector.

ng recent years many devices and methods of testing quantitative detection of fire-damp in coal mines have ntroduced, both in this country and abroad, but most of nvolve testing and calculations, estimation by analysis, uch methods, whilst probably more correct in the end he indications of a direct-reading instrument, are not ient for quick work, and also require to be made by a operator. The General Electric Company, Ltd., en Victoria Street, E.C., have recently introduced an ting electrical instrument for indicating directly the tage of fire-damp present in the atmosphere of mines. hole apparatus is conveniently assembled in a portable ith hinged lock-up lid. A feature of the instrument is s its calibration curve is a straight line, the deflection of lvanometer is exactly proportional to the percentage of np present. This figure is read off directly from a scale, unskilled observer can make the test in less than a . If desired, pipes can be connected to the instrument arious points, and the presence of fire-damp at a distance n be detected.

"Trutint" Glassware.

esponse to a number of enquiries for glassware which ve artificial light of sunlight value, a complete range ur matching pendants and globes has been put on arket by the British Thomson-Houston Co., Ltd., of House, Upper Thames Street, E.C. This glassware is le in various compositions for different daylight values.

roup I., the composition of the glass is such as to ensure te matching in colour comparison work; this particular not intended for general room lighting, and is only le as a pendant reflector unit, for use where there is ich extraneous light to interfere with colour matching. II. is for general illumination and gives a light of " sunlight value; it is particularly suitable for lighting int shops, lithographic works, art galleries, etc. III. is also for general illumination and gives a light ternoon" sunlight value. It is intended for lighting thing shops, etc., where daylight quality of light is l. The globes in this group are cased over by a light r a very light opal body in which "Trutint" has been and are known respectively as "Trutint Cased" and nt Opal." The cased glass appears white when un- , while the other units appear bluish. "Trutint" glass- s not made for use with ordinary Mazda lamps, but for half-watt lamps.

New L.C.C. Sign Regulations.

May 1 there came into operation a new set of by-laws ing structures overhanging the public way. No lamp cture carrying it shall be fixed or retained so as to over- he public way in such a manner that any part shall be ss height than 8 ft. clear above the surface of the foot- r nearer to the carriage way than 2 ft. 6 in. from the dge of the kerb, or project more than 3 ft. from the wall p front to which it is attached. No lamp may be fixed including framework and ornaments, exceeds 3 ft. in rt, measured in any direction horizontally, or exceeds height or weighs more than 94 lb. No overhanging sign e less than 8 ft. clear above the footway or nearer than in. to the carriage way, or project more than 4 ft., and sign extend along the face of a wall or shop front for han 2 ft. it may not project more than 2 ft.

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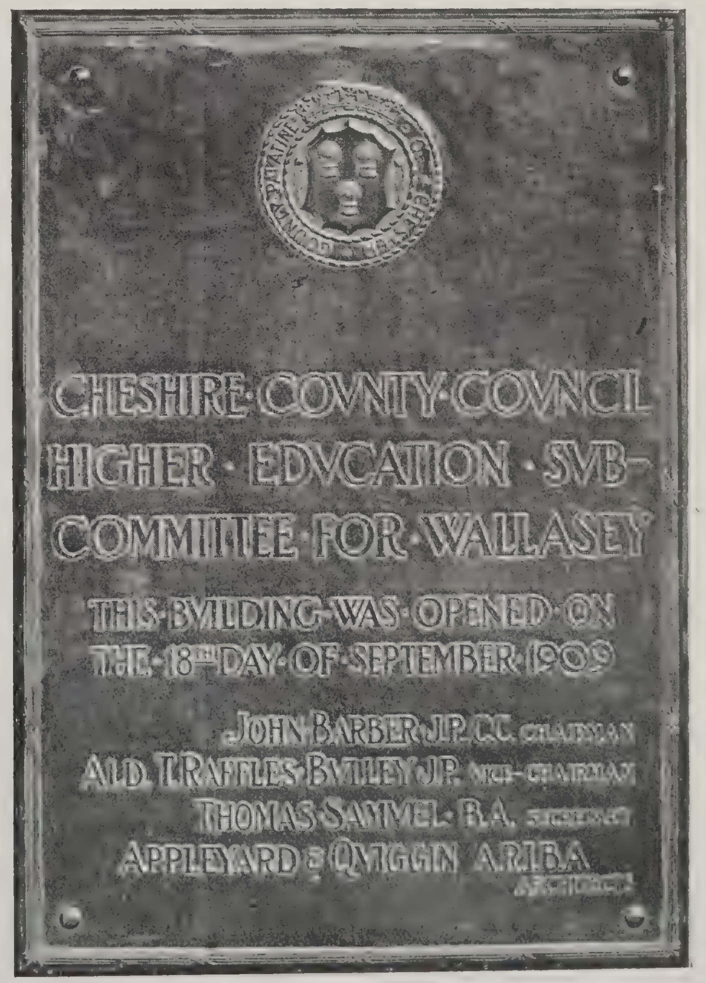

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ARCHITECTS

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accept the lowest or any Tender.
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tons rails, 12 tons steel joists, 25 tons ca
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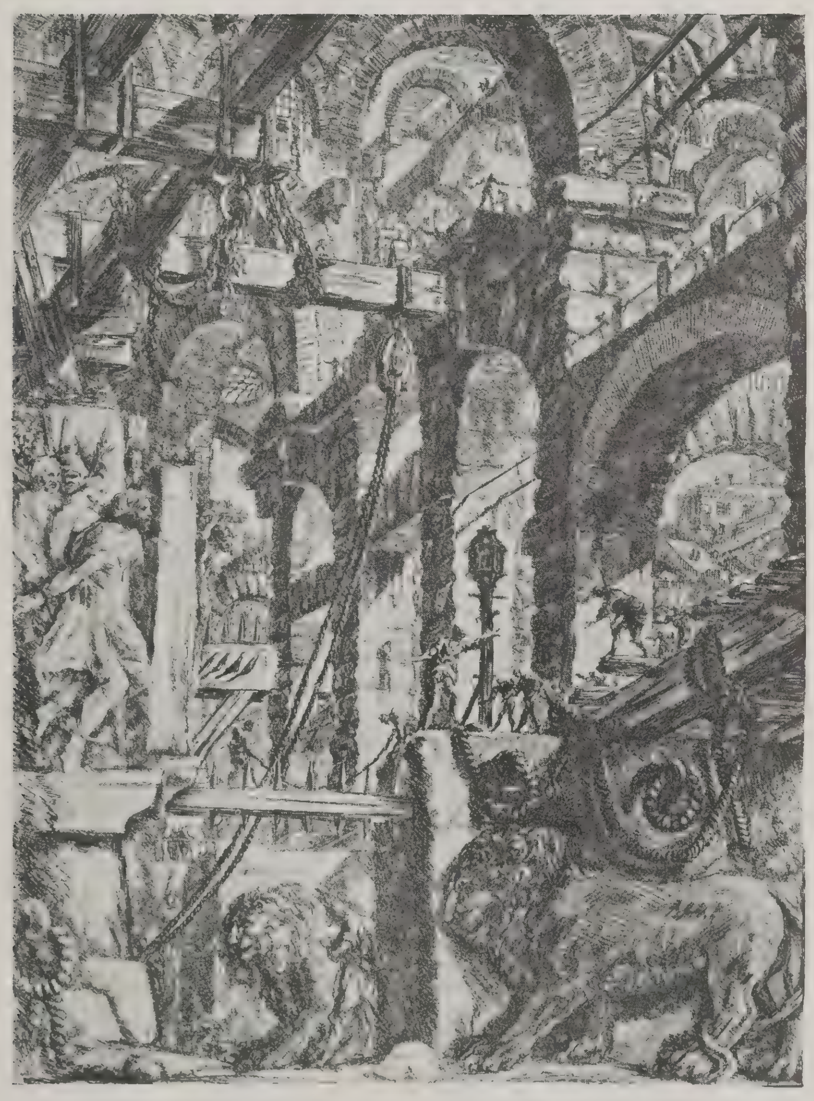
THE
ARCHITECTS' & BUILDERS JOURNAL.

Wednesday, May 12, 1915. Volume XLI. No. 1062.

No. 135.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 12, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 106

EDITORIAL.

IN an unusually interesting report prepared by the Local Government, Records, and Museums Committee of the London County Council, a succinct account is given of Nos. 55 and 56, Great Queen Street, Holborn, better known as "Boswell's House." It is recorded that the building originally formed the western portion of a large mansion built in 1637, probably from the designs of John Webb, pupil of Inigo Jones. It was known as Bristol House when, before or after division, it was successively inhabited by John and George Digby, politicians of the Stuart period, who were respectively the first and the second Earls of Bristol. Other notable occupants were, in succession, Thomas, third Baron Fairfax, Commander-in-Chief-from 1645 to 1650; William Cavendish, third Earl of Devonshire; Robert Spencer, second Earl of Sunderland, Lord President of the Council in the reign of James II.; Henry Howard, seventh Duke of Norfolk; and James Boswell. The titled names are re-cited less for their intrinsic value than as evidence that some of the nobility of the seventeenth century were content to dwell in town-houses of remarkably unpretentious, not to say mean, character, for "Boswell's House" was neither big nor beautiful. Perhaps the town-houses that may be expected to multiply when the war is over will not be big, but they should certainly be the more beautiful on that account.

* * * *

It now appears that the preservation of the old house was well-nigh impossible. Its condition had called forth a "dangerous-structure" notice from the district surveyor, who, however, did not require demolition; but on careful examination, it was found that the brickwork and piers supporting the structure were decayed and cracked, that dry-rot infested the roof-timbers, and that the front wall was out of plumb. It is a pity that these particulars were not made public at the time when the impending demolition—since effected—was being so warmly denounced in the newspapers, for it now becomes apparent that the charge of "vandalism" against the United Grand Lodge of Freemasons, the owners of the property and the arbiters of its fate, was rather flimsy, more especially since they would have been willing to incorporate the old front in the new building, if this course had been practicable, but it was disapproved by the district surveyor.

* * *

It is mere justice to record that, after all, the United Grand Lodge come out very well indeed in this affair. Not only were they willing to preserve the front *in situ* if that had been feasible, but they very generously offered to present to the London County Council valuable and interesting objects from the old building, and to contribute towards the cost of taking down and removing them. This offer the Council have wisely accepted. They propose that the staircase shall be exhibited in the Geffrye Museum, and that the façade of the building shall be re-erected in Geffrye's which, it will be recalled, is itself another exam salvage. In 1911, the Ironmongers' Company ferred to the London County Council the alms and grounds in Kingsland Road, Shoreditch, in the name of the founder, Sir Robert Geffrye, memorated. His monument, in which also Geffrye is commemorated, was removed to the houses from St. Dionis Backchurch, Lime Stree when, in 1878, that church was destroyed. St. was the third church upon its site, and was b Wren. Its tower was 90 ft. high.

* * * *

A City church that, by escaping the Great 1666, deprived Wren of an opportunity that h well spare, was last week in considerable dang a fierce fire that destroyed a six-storey wareh Crutched Friars. Fenchurch Street station h of its arched glass roof destroyed, the offices Port of London Authority suffered some damage, and sparks falling on the church of St. Hart Street. set fire to "the wooden lid of a cis the roof." That wooden lid is surely an anach and the necessity for a fire-resisting substitute indicated with sufficient clearness and en Fortunately the firemen were equal to the o and the church suffered no damage, to our content, as Samuel Pepys might have said. St. is at the corner of Seething Lane, wherein Pep when he was Secretary to the Navy. Subse he occupied a house in Hart Street, and he was in St. Olave's at nine at night, "by ye Com Table, in a vault of his own makeing, by his w brother, on June 4, 1703." There is a monu his wife in the chancel of this interesting old ch whose graveyard are interred several victims Great Plague, which made the Great Fire a ble disguise. There is a tradition that the plag appeared in this parish—in the Drapers' Alm in Cooper's Row.

* * * *

Last Wednesday the report of the Depar Committee on the use of paints containing le issued. In it the Committee recommend tha should be introduced prohibiting the importati or use of any paint material which contains m 5 per cent. of its dry weight of a soluble lead co when determined by a specified formula. They recommend that, in order to give time to arra supplies of innocuous paint, the proposed re should not be brought into force until three yea the publication of the report, and here there s be a serious flaw in the datum. It is possible Committee's advice as to prohibition will be sooner or later, but until there is absolute cert this point paint manufacturers, "corroders," an

ısiness interests are involved, may well hesitate
the necessary changes in their methods of pro-
A time-limit is only just, but it should date
passing of the bill; for if it should so happen
bill never gets through, those manufacturers,
white-lead or of paint, who make changes in
ıon of it may find themselves at some disad-

* * * *

e other hand, many firms have for some time
r some years, in fact—met the demand for
paint, and for them the new edict may be
to possess no terrors. Indeed, it is the prac-
nter and decorator, rather than the manufac-
ıo clings most tenaciously to lead pigments,
he fancies, have more "body" than the
ıs substitutes, although it may be proved to
ration that in three-coat work, zinc oxide pig-
re fully equal in opacity to lead pigments.
r, the workman, strongly prejudiced against
test innovation, has been known to resent the
ifference of behaviour under the brush that he
erned or imagined as a characteristic of the
ıedium. But for the workman's peculiarities,
ested exclusion of lead might never have been
necessary. Lead-poisoning among house-
is a preventable disease, but the workers could
nduced, still less could they be compelled, to
few and simple precautions for its prevention
e at first blandly advised and afterwards made
ory. But it is one thing to lead a painter to
r and another to make him use it effectually.
ıtended by the white-lead manufacturers that
f danger to painters arises from the particles
in "rubbing-down," and that very simple pre-
would entirely prevent the inhalation of lead
is cause; while mere cleanliness is all that is
y for the avoidance of absorption by the mouth
gh the skin.

* * * *

y a decade has elapsed since employers were
ıpelled to supply house-painters with almost
redundant facilities for cleanliness, and yet
plumbism and painter's colic are still nume-
ıd plumbism is a truly pitiable disease, the
ometimes lingering for many years until com-
ıralysis, supervening upon "wrist-drop," puts
o sufferings that in nearly every instance could
en avoided if the patient had used just that
ıount of care which nevertheless seems beyond
city of—we will not say the average workman,
ainly beyond that of the man or youth who is
ıe average, and who represents a sadly large
ıge of the whole number, and it is always for
ority that special prohibitive legislation is
y.

* * * *

rance a law prohibiting the use of white-lead
sed in 1909, but its operation was postponed
years, after which period the use of white-lead,
int composed of linseed oil and white-lead, and
ecial compounds containing white-lead in any
as forbidden for every description of painting
It was doubtless this example which induced
authorities to adopt the compromise which has
o ineffectual as to provoke the present develop-
In France, the five years' grace was obviously
cessary there and then than it could be now
since our manufacturers, as we have said, are
with the idea, and have to a great extent made
tions for a change that they have felt to be
ng; but we imagine that the term of three
little enough, without discounting the uncer-
rval between the issue of the recommendation
passing of the proposed Act.

When, if ever, the Act to prohibit the use of white-lead comes into force, a very ancient industry will be virtually extinguished. White-lead was known to the oldest civilisations, for it must have been used in the glazing of the ancient pottery of which specimens have come down to us. Pliny and Vitruvius describe its manufacture from lead and vinegar. Vitruvius in his twelfth chapter, says: "In Rhodes they put shavings in jars, pour vinegar over them, and lay pieces of lead on the shavings; then they cover the jars with lids to prevent evaporation. After a definite time they open them, and find that the pieces of lead have become white-lead." But it is not much more than two centuries since manufacture on a commercial scale by the almost equally primitive "Dutch process" began. Some corroders boast that they still use actual vinegar in the process, instead of dilute acetic acid! It is said that the exact manner of conversion of the metal into a carbonate is still but imperfectly understood by chemists, who may now have less incentive to probe the mystery.

* * * *

For the architect, the substitute for white-lead—zinc-white—has the very estimable advantage that it keeps its purity of colour amidst the sulphurous fumes that, especially in interior decoration, work such havoc with lead pigments. Zinc-white is manufactured by a very simple process. "The metal is vaporised by heat in retorts, whence it is carried to a chamber, where the vaporised zinc comes in contact with air containing oxygen, for which element it has great affinity. It combines with the oxygen, and is at once converted into an oxide of zinc, which is gathered into a series of sacks or small chambers suspended with the mouths opening downward." That is the essential part of the process, upon which, of course, there are subsequent details of grading and refining. But while it seems quite clear that paint manufacturers will have but little difficulty in adapting their works to the use of zinc oxide the case of the corroders is different. If the recommendation of the Committee takes effect, their occupation will be gone, and another British industry will be lost.

* * * *

But, while paint manufacturers may be "equal to either fortune," and indifferent to the issue, it is not likely that the lead-corroders will allow themselves to be eliminated without a struggle. As will be seen from a communication which we publish in another part of the present issue, they have been prompt to repudiate the Committee's report, and their organisation—the United Kingdom White Lead Corroders—may be expected to offer most strenuous and determined opposition to the proposed legislation. Threatened industries live long, and theirs may yet survive the recommendations of the Committee, as there should be ample opportunities of having the matter thoroughly threshed out before Parliament. Coming, as it does, under the Factory Acts, the lead-corroding industry is so strictly under observation and control that the workers in it are as far as possible safeguarded from attacks of lead-poisoning; and here, again, we have been assured on good authority, the personal habits of the workers are a vital factor, as either predisposing to the disease, or, on the other hand, securing immunity from it. That, however, is a question for experts, and one upon which, until their evidence has been thoroughly weighed and sifted by competent authority, we should not care to take sides. If this industry is as deadly as some would seek to show, by all means let it be superseded. On the other hand, if a good case can be made out for its retention, then, on many grounds that are too obvious to particularise, this old-established industry should not be destroyed by Act of Parliament.

HERE AND THERE.

SOME designs I have seen lately prompt me to make another passing reference to the gentle art of cribbing. When the practice of punching tram and 'bus tickets in the presence of the passenger was newly established by Act of Parliament, there was a happy quatrain abroad, and recalling that I would suggest every drawing-office should have a card prominently displayed for the edification and guidance of the staff: "Crib, brothers, crib; but crib with care." This of course is reducing matters to a very deplorable condition, and as the architectural version of a reprehensible rendering of the eighth commandment, "Thou shalt not be found out," will be eschewed by all who would fain uphold the honour of the profession. But, in truth, the way of the wicked is a favourite way, and if we transgress let us at least endeavour to get the credit of being competent. Perhaps to many it may seem a pretty poor outlook to keep harking back to some style of years ago, there finding our appropriate substance, and, at any congress, the architect who worked on those lines would cut a sorry figure in comparison with his obviously more brilliant brother making a brave show of the creed that interprets the past in terms of the present. But, somehow, things in practice do not work out so well. The architect intent on rendering the past in terms of the present is almost sure to be unconvincing. There are designs in this year's Academy which illustrate the point exactly. They are meritorious in so far as they follow their model, but go all to pieces in the process of being individualised. I could wish the authors had kept in full view the spirit of the office-card I have indicated. "Crib with care" is an excellent motto: in one light bearing an inspiring meaning—that we should make assiduous study, by actual measurements especially, of the old work which is so pleasing; in another light bearing a warning—that we should be careful to take the unfamiliar as our model. The exceptional things, the things which, having once seen, we remember; these the designer should avoid if he values his reputation.

* * * *

Ned Ward, in the "London Spy" of 1699, quoted in the "Gentleman's Magazine" of 1857, and requoted by Sir Laurence Gomme in "The Making of London," throws a little light on the manners and ways of the seventeenth-century workman. Speaking of his visit to the new St. Paul's, then building, he says: "We thence moved up a long wooden bridge, that led to the west porticuss of the church, where we intermixed with such a promiscuous rabble that I fancied we looked like the beasts driving into the ark, to replenish a succeeding world. From thence we entered the body of the church, the spaciousness of which we could not discern for the largeness of the pillars. We now went a little further, where we observed ten men in a corner, very busy about two men's work. The wonderful piece of difficulty the whole number had to perform was to drag along a stone of about three hundredweight in a carriage in order to be hoisted upon the mouldings of the cupola; but they were so long in hauling on't half the length of the church, that a couple of lusty porters in the same time would have carried it to Paddington without resting of their burthen. From thence we approached the choir on the north side, the entrance of which had been very much defaced by the late fire, occasioned by the carelessness of a plumber, who had been mending some defective pipes of the organ, which unhappy accident has given the Dissenters so far an opportunity to reflect upon the use of music in our churches that they scruple not to vent their spleen by saying, 'Twas a judgment from Heaven on their carvings and their fopperies for displeasing the ears of the Almighty with the profane tootings of such
abominable catcalls.' When prayers were ov
returned into the body of the church, happily
mixed with a crowd of good Christians, who ha
cluded with us their afternoon's devotion. W
took notice of the vast distance of the pillars
whence they turn the cupola, on which, they sa
spire to be erected three hundred feet in height,
towering pinnacle will stand with such stup
loftiness above Bow steeple dragon, or the Monu
flaming cross, that it will appear to the rest of th
temples like a cedar of Lebanon among so
shrubs, or a Goliath looking over the shoulder
many Davids."

* * * *

The friend who told me how the Futurist de
interior decoration, to slow music, did not discl
source of his information, but I now find it t
been the newspaper. Mr. Kemp Prossor is the
"All my rooms are set to music," said Mr. Prosso
all my ideas and inspirations come from music.
someone is playing, I do not hear any notes, bu
the most wonderful colours and combinati
colours. My sub-conscious self is uppermost.
come from beyond the world of sense and from
and what may be achieved through colour in the
it is impossible to imagine at present. We a
just beginning to realise its significance." Mr.
has been showing some of his rooms at one
London galleries. I have not been to see the
the following description of the "Black and
Room" would seem to indicate no other than an
ciable advance on the lines made familiar by th
and Crafts movement: "This particular roo
white walls with black panels. Round the
border birds flew at intervals, while white birds
the black curtains, and again on the black cush
the chair. The idea of aerial movement co
with the glass lamp, the tall crystal candlestic
daffodils, in a black vase, flaming against the
background like cups of golden sunlight, ser
vitalise the neutral tints of the main theme of
ing." This is not an attitude in regard to dec
that appeals to me. It savours too much of blith
But the addendum is interesting: "When I
child," said Mr. Prossor, "I could not bear c
If there was any crimson near me I used to cove
Now I know that that particular shade of
devitalising. Last winter at a dinner party wh
shades were used the hostess said to me, 'Wha
matter with us all, we are so dull?' I said, '
butler to remove those red lamp-shades and su
orange.' She did so, and the conversation
quite sparkling. Orange is a stimulant to inte
brilliancy." Obviously, therefore, the Institute
lose no time in getting orange shades put on th
in the lecture room.

* * * *

The transformation of the churchyard
Michael's, Cornhill, into an "open space" for t
has given occasion to a writer in the "Daily Chr
to unearth Stow's account of how the stee
attacked by the traditional enemy of St.
According to Stow, "certain men ringing of a
tempest of lightning and thunder did arise,
ugly-shapen sight appeared at the window,
whereof they all fell down, and lay as dead."
they came to themselves they found "certain
scratched as with a lyon's claw." Stow, who w
in the parish, the son of a tailor, had often m
these Devil's claw-holes "with a feather o
stick," and considered this ocular demonstrati
clusive. The steeple, it may be added, went t
of many another in the Great Fire: the existin
being Wren's version of Magdalen College
Oxford, 25 ft. less in height. It was designed
Grand Old Man of English architecture when
ninetieth year; so there can be no question
architects being "too old at forty."

UBI

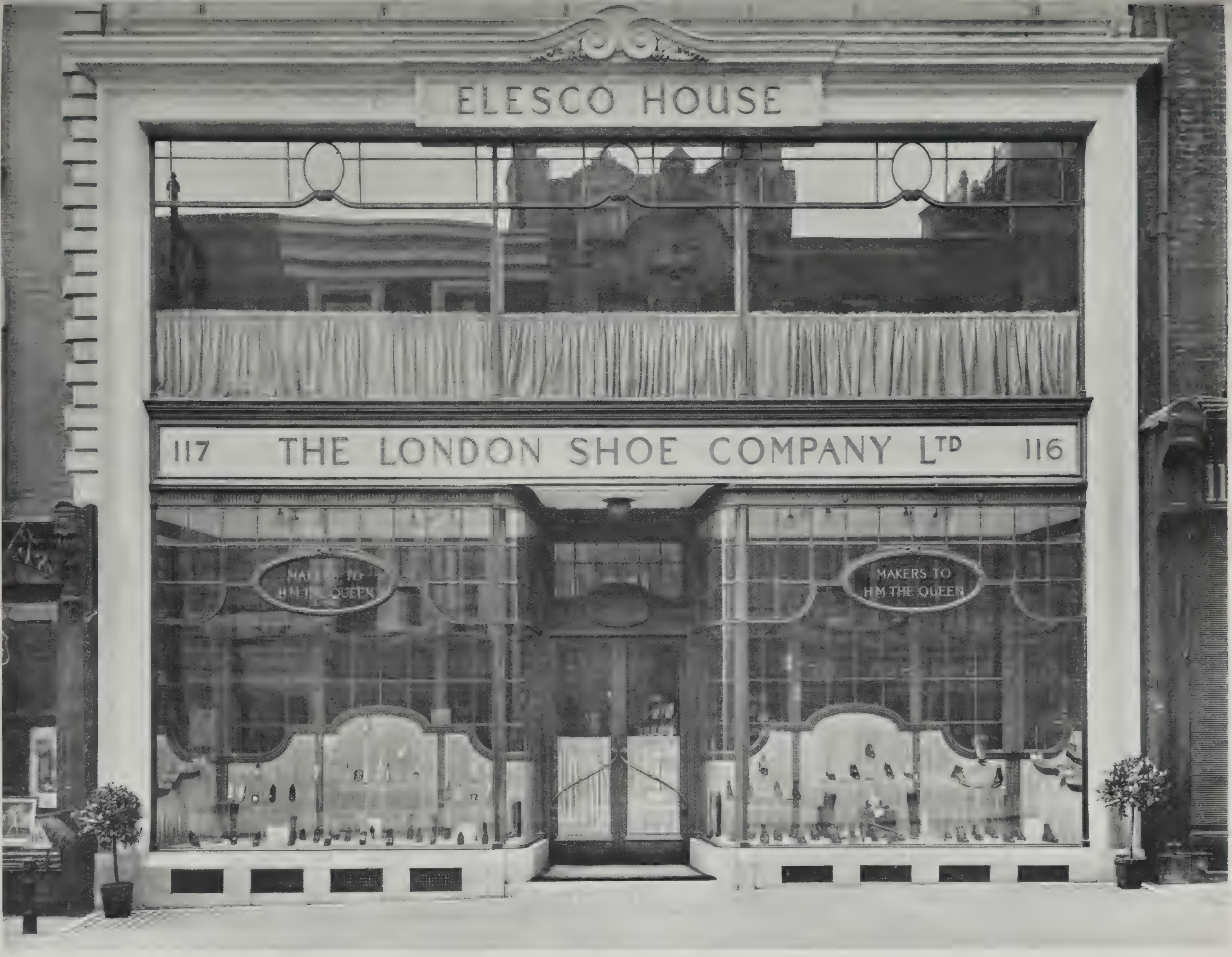


Photo: Bedford Lemere & Co.

MODERN SHOP FRONTS. XVII.—Nos. 116 AND 117, NEW BOND STREET, LONDON.
A. O. BREEDS, ARCHITECT.

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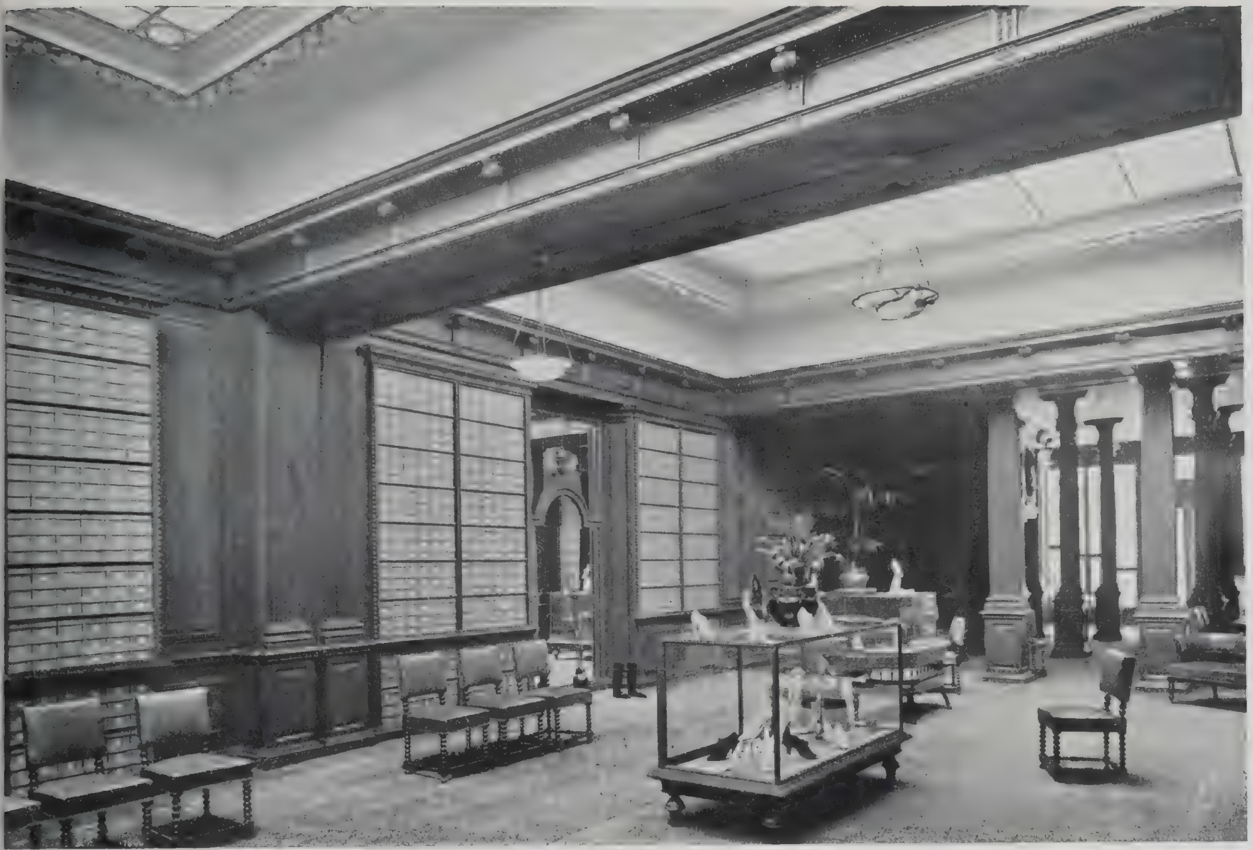

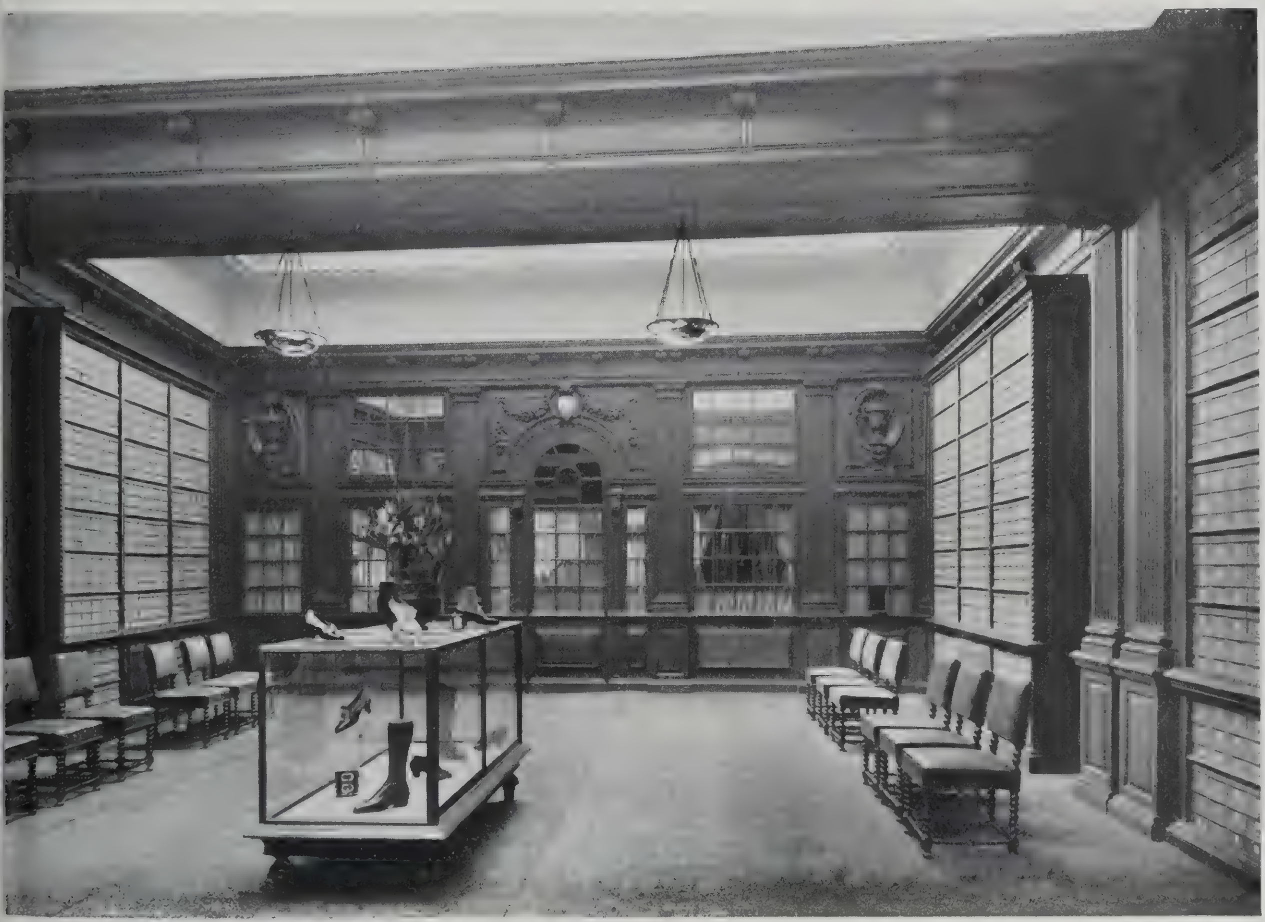

Photos: Bedford Lemere & Co.

CURRENT ARCHITECTURE (SERIES II.). XIX.—PREMISES OF LONDON SHOE COMPANY, Nos. 116 AND 117, NEW BOND STREET, LONDON. INTERIOR DECORATION BY ANDREW RUSSELL.

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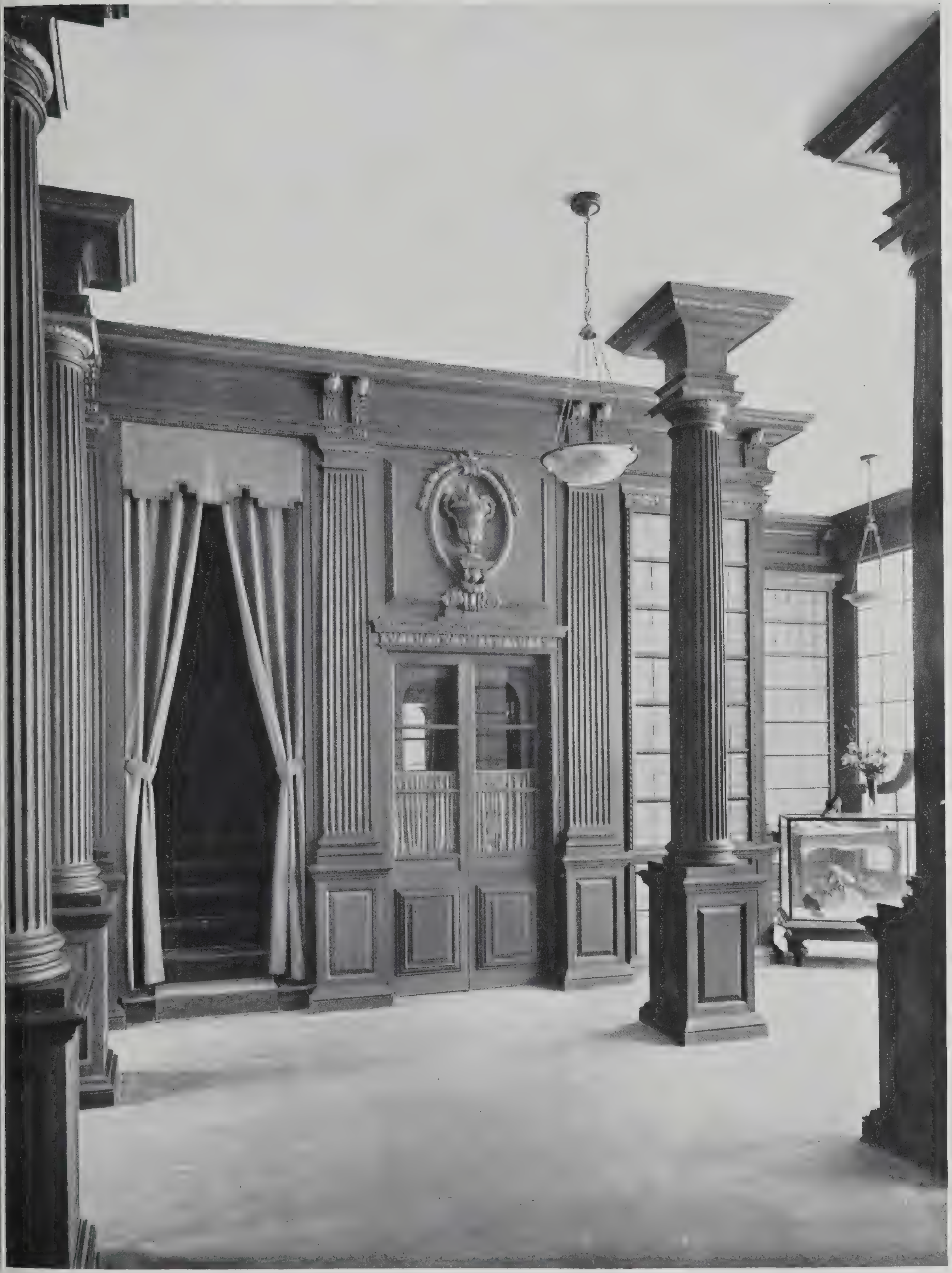

Photo: Bedford Lemere & Co.

CURRENT ARCHITECTURE (SERIES II.). XX.—PREMISES OF LONDON SHOE COMPANY, Nos. 116 AND 117, NEW BOND STREET, LONDON. INTERIOR DECORATION BY ANDREW RUSSELL.

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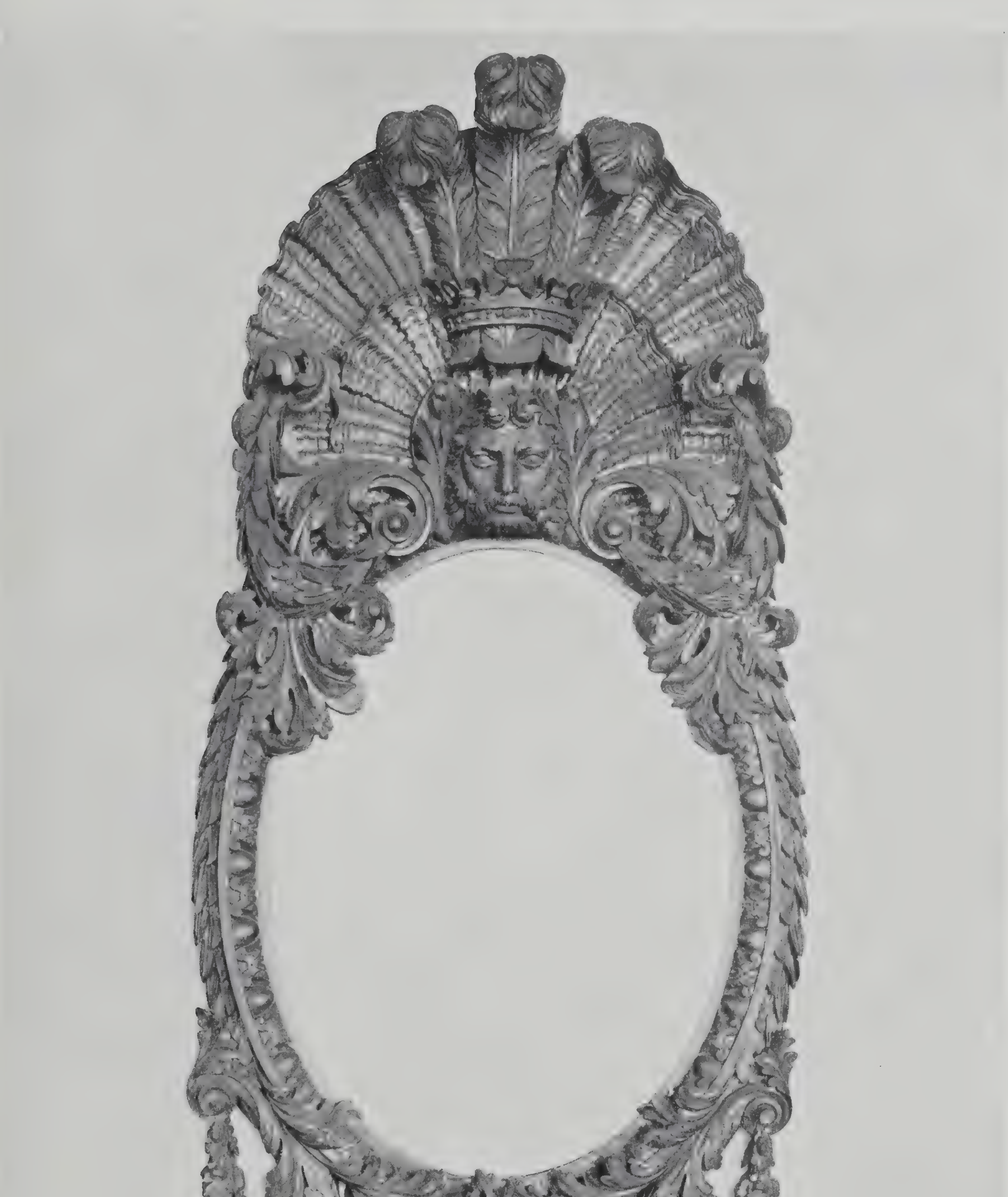

DETAILS OF CRAFTSMANSHIP. XVII.—CARVED WOOD MIRROR IN VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.

ASCRIBED TO WILLIAM KENT.

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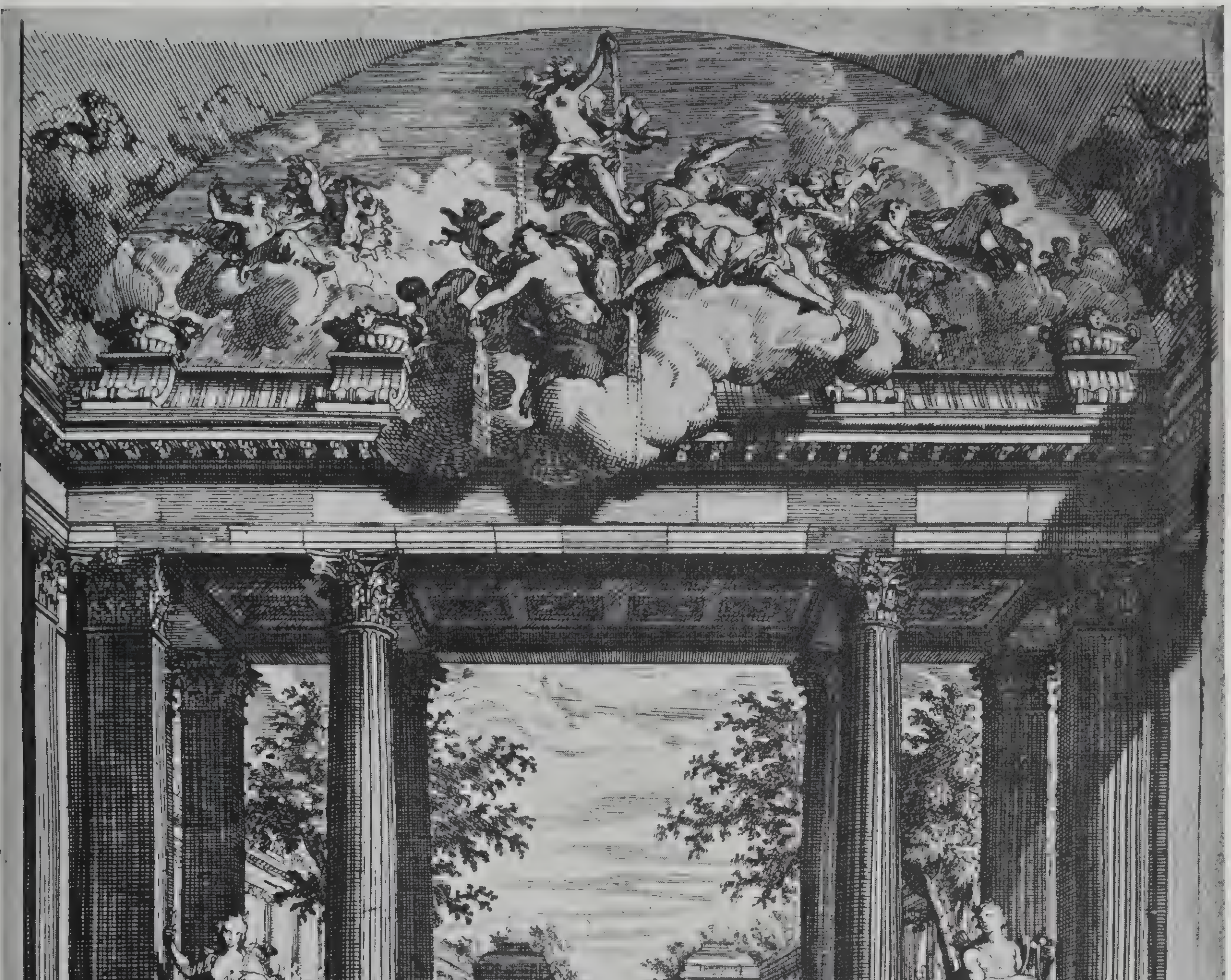
Escallier du comte d'Albemarle a Voorst du desien de Marot
Marot inuente et desinee Sur la place et
Graué auec priuilege des Etats Generaux des
Prouinces Vnie et d'Holande et West friest
26.

DESIGNS BY DANIEL MAROT. IX.—A STAIRCASE.

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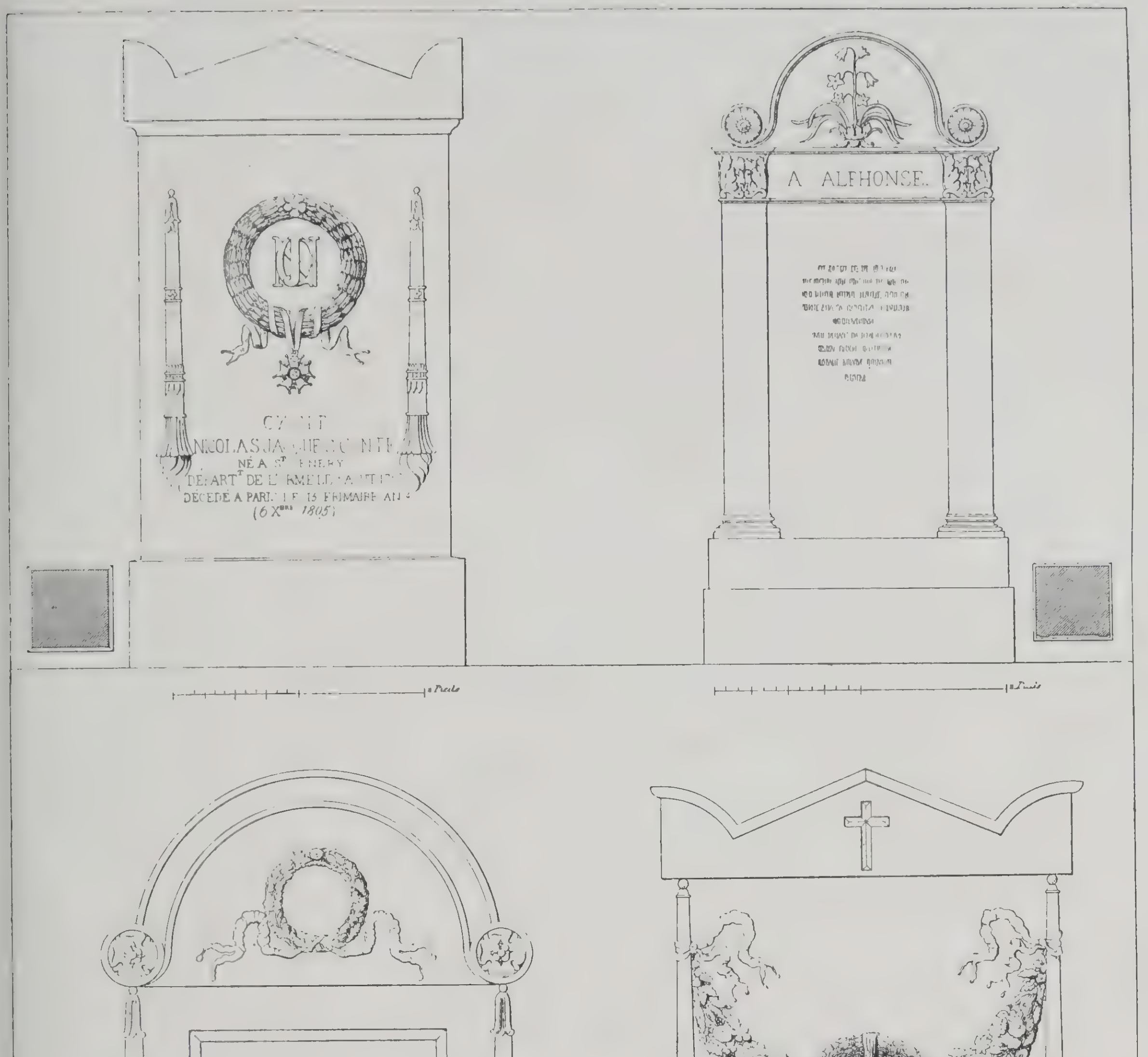

FRENCH MONUMENTS. XVI.—FOUR TOMBSTONES IN PARIS CEMETERIES.

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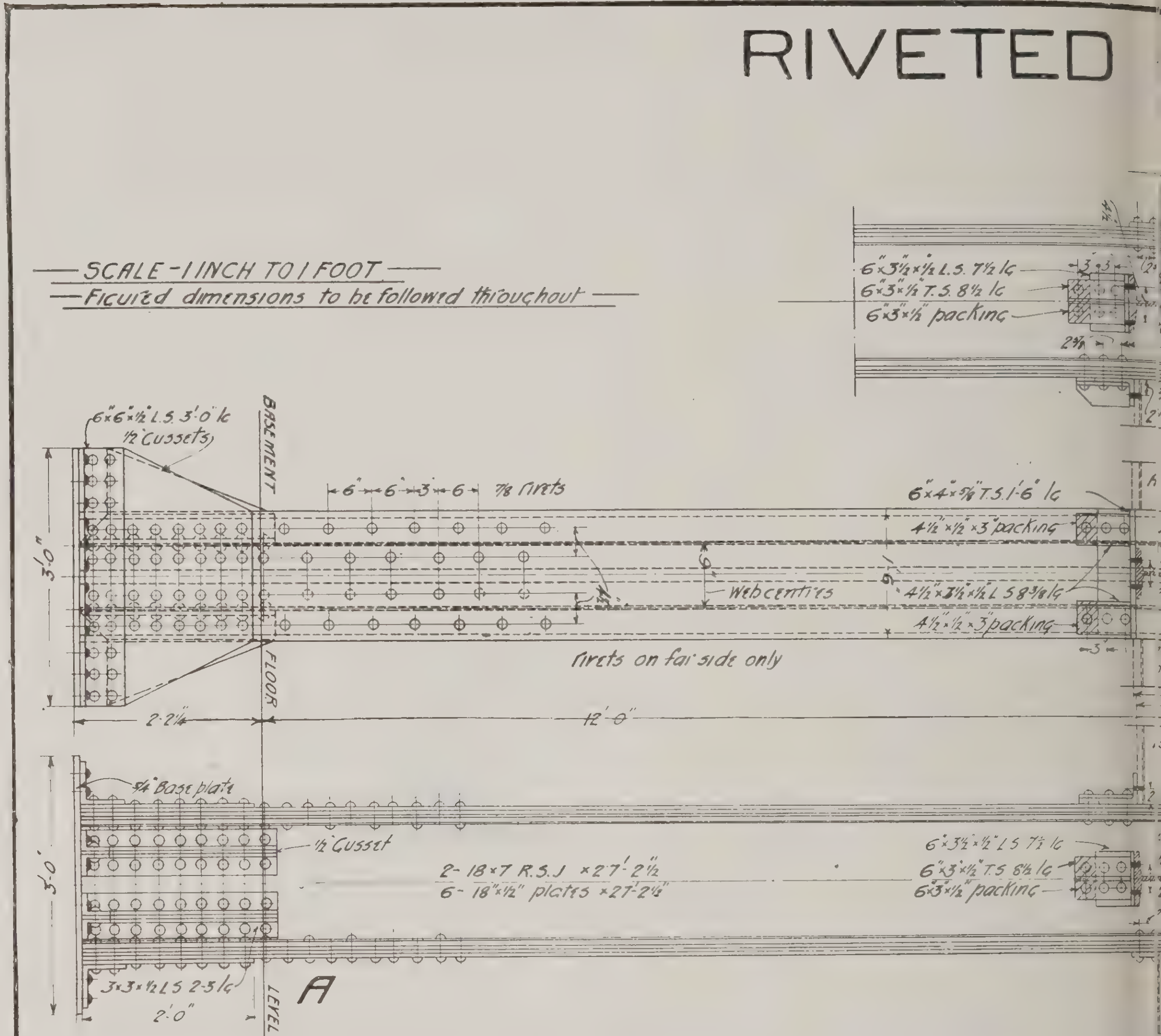
RIVETED

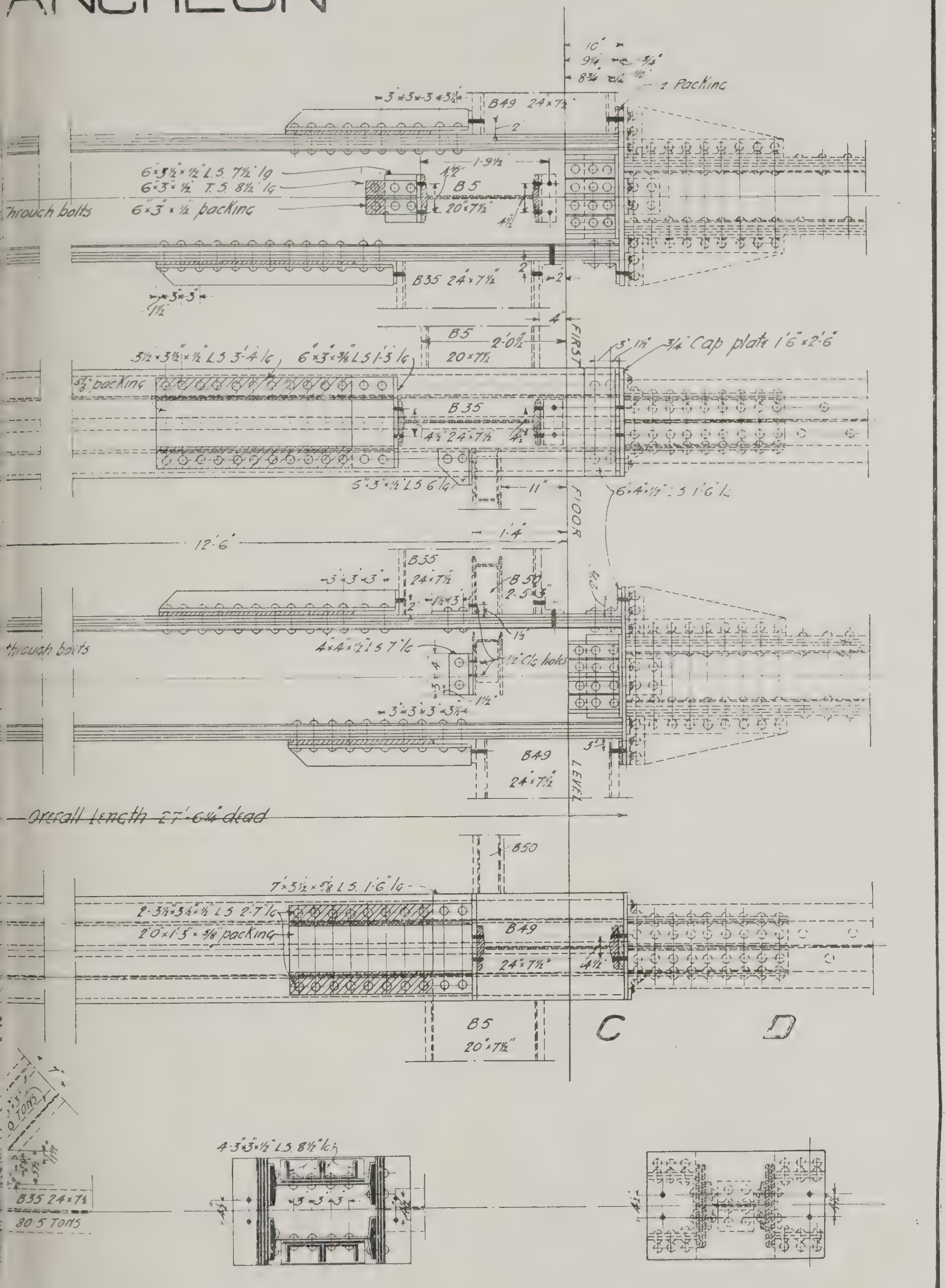


All rivets and connecting bolts to be ⅞" diar. except where otherwise shewn
Countersunk rivet heads shewn thus
Holes for connecting bolts or rivets shewn thus ✛

STANCHEON TO THIS DETAIL. MARKED H_1

ONE STANCHEON TO THIS DETAIL BUT TO OPPOSITE HAND MARKED HX_1

ANCHEON


10"
9¼
8¾
½
2 Packing
3×3×3×3½
B49 24×7½
2
1-9½
6×3½×½ L.S. 7½" lg
6×3×½ T.S. 8½" lg
6×3" × ½ packing
through bolts
4½"
B5
20×7½
1½
B35 24×7½
3×3
1½
2
2
4"
B5
20×7½
2-0½
FIRST
3½×3½×½ L.S. 3-4 lg, 6"×3"×⅝ L.S. 1-3 lg
⅝ packing
¾" Cap plate 1'6"×2'6"
B35
4½ 24×7½
4½
5"×3"×½ L.S. 6 lg
11"
FLOOR
6×4×½ : S 1'6" lg
12'6"
1'4"
B35
24×7½
3×3×3
B50
2.5×3
4×4×½ L.S. 7 lg
¾" C/c holes
through bolts
1½
3×3×3×3½
B49
24×7½
LEVEL
Overall length 27'-6¼" dead
B50
7×5½×⅝ L.S. 1'-6" lg
2-3½×3½×½ L.S. 2'7" lg
2'0"×1'3"×⅝ packing
B49
24×7½
4½
B5
20"×7½"
C
D
B35 24×7½
80·5 TONS
4-3×3×½ L.S. 8½" lgs

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THE PLATES.

hop Premises, Nos. 116 *and* 117, *New Bond Street, W.*

THIN the last few years Bond Street has largely rebuilt itself, and quite a number of interesting shop fronts have been carried out. f the most recent is that of The London Shoe ıny. As will be seen from the photograph of terior, the opening in the lower portion of the ıg comprises two floors, and is framed in by a huge architrave, in stone, the space being l into two parts by the fascia. The name of the .g, Elesco House, appears in good lettering on a ıt second-floor level, and in the same lettering is n's name on the marble fascia. The shop front ; in bronze, on a marble base. Mr. A. O. Breeds, iate R.I.B.A., was the architect. Within, a very ting scheme of decoration has been carried out . Andrew Russell. As will be seen from the tions, the series of boxes containing shoes are l in case form, framed in by fluted pilasters on ·d pedestals. The line of box casings is broken er side by mirrors, these being encased in gilded rames, with a vase in low relief above the shaped ıriched head of the lower frame. Vases, too, ·d from an original model, and set within an oval f enrichment, are effectively used in other parts. om is top-lighted, there being a deep cove with ·d plasterwork around the two laylights. The f decoration is that of the William and Mary The building is of steel-frame construction, vill be obvious from the views of the interior that irders span the apartment; they have been cased treated in keeping with the rest of the wood-ınd, similarly, the stanchions at the entrance to ›p have received a decorative covering of wood. ɔanelling and fittings have been executed in ın oak, which has been treated in a special r so as to emphasise the effect of the medullary ıese being darkened. The various enrichments t, and have been toned so as to obtain an effect to that prevailing in the William and Mary

A William Kent Mirror.

mirror, now in the collection at the Victoria lbert Museum, South Kensington, is of carved the style of William Kent. The official descrip-ys that it was probably designed by him for the of Wales about 1743. It is an exceedingly 'e piece of work, of a kind in which Kent d. The *motifs* are taken from furniture of the XV. period, but have here been adapted with originality, so as to give the design fresh :er.

Staircase by Daniel Marot.

staircase designs are among the most dramatic ot's book, the one shown this week being per-ıe best of the series. The propriety of painting ctural forms on canvas so as to produce an is one which may well be questioned, but, apart her from the ethics of the matter, the brilliance composition is unquestionable, and on that t the plate is of great interest.

Four French Monuments.

se four may all be regarded as headstones. ıre very characteristic of their period—the first of the nineteenth century. That to Nicolas s Conté is in the North Cemetery. The face a floral wreath with an order suspended by s, and reversed torches on either side. The rear ɔn bears a sabre surmounted by a crown, while sides are inscriptions recording that the deceased ɔlonel of Infantry, Member of the Legion of r, of the Institut d'Egypte and other bodies. mb with the letters H.R. within a wreath is that of Mademoiselle Roger, daughter of the celebrated engraver. The other two are of unknown persons.

A Riveted Stanchion.

This is described in detail in the article on page 224 of this issue—the third in the series on steel-frame construction.

CORRESPONDENCE.

The Strength of Filler Floors.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The very interesting article in your issue of March 31 last by Mr. Meston upon the strength of filler floors is of considerable importance to architects, who frequently have to decide, upon scanty data, as to the relative advantages of steel framework and reinforced concrete for a particular building.

If the floor calculated has only a M.R. of 48.7 inch-tons, it would only carry 2 cwt. per foot super. over a span of 10 ft., and as it involves 1.8 per cent. of reinforcement would almost certainly be easily beaten in cost by a reinforced concrete continuous slab floor with secondary beams.

But the general conclusion arrived at—viz., that only a substantial thickness of concrete above the joists enables the concrete to enhance materially the strength of the joists acting alone, is, I think, contrary to the experience of those who have used and tested such floors. In the handbook of a well-known firm of steel manufacturers a series of safe loadings are specified which are very considerably higher, and I have ascertained that these are based upon actual tests. At a recent meeting of the Concrete Institute it was stated that the practice of the Office of Works had been for many years to use 4 by $1\frac{3}{4}$ joists at 24 in. centres in 6 in. of concrete (about 1 per cent. of reinforcement) for ordinary floor spans. I have recently seen such a floor 12 ft. span carrying an extremely heavy load of piled-up granite thresholds, and have been credibly informed of much heavier loadings on the same floor at a period when it was necessary to receive and store an unexpected amount of material on account of the war.

Mr. Meston's graphic calculations can scarcely be at fault, because his results coincide very exactly with those given by plotted graphs of the formulæ expressing the properties of double reinforced beams. It is, however, I believe, orthodox theory that when reinforcements (which must be bent when the beam deflects) are individually stiff, as when T or L sections are substituted for the ordinary thin round rods, the section of the beam should be credited with their individual resistance to such bending.

No allowance is made for this in the article, and when the stresses induced by such bending are more or less identical with those which accompany the deflection of the beam as a whole, one certainly has some difficulty in grasping the necessity of doing so; but obviously the substitution of rigid steel for flexible concrete in the web area lying between the reinforcements disposed in rods must materially strengthen the beam.

The point is somewhat complicated, and may even account for the excess over theoretical strength which is found in all thick-webbed sections. It is instructive to note that when this allowance is added to the case considered in the article, the strength of the floor is almost identical with its strength as calculated by the constants given in the handbook to which I have referred. In view of the extensive use of filler floors in normal times, and even in new factory buildings now under consideration or in progress, it would be highly desirable that their safe working strength should be determined without delay by some authoritative and independent tests.

PERCY J. WALDRAM.

GARDEN SUBURB COMPETITION, DONCASTER.

[SPECIALLY CONTRIBUTED BY LIONEL B. BUDDEN, M.A., A.R.I.B.A.]

THE Corporation of Doncaster invited designs for the laying out of some twenty acres of the area known as the Carr House Estate, on four acres of which 102 houses were to be erected. Mr. Patrick Abercrombie, M.A., A.R.I.B.A., was appointed assessor of the competition, and premiums of £50, £30, and £20 were offered for the schemes placed respectively first, second, and third; whilst the commission payable for the buildings was to be at the rate of 5 per cent. on the cost of one block of each type plus a reduced percentage (to be settled by subsequent arrangement) for duplicate blocks.

Three types of houses were required: Six of Type A—Group of three houses, each containing a parlour, living room, scullery, and three bedrooms, to cost not more than £220 each. Sixty-four of Type B—Group of four houses, having living room, kitchen, and three bedrooms, at a cost of no more than £180 each. Thirty-two of Type C—Group of four houses, each containing living room, kitchen, and two bedrooms, the price not to exceed £160 each.

The following drawings were required: A block plan to a scale of 100 ft. to 1 in., showing houses, but no drainage. Plans, sections, and elevations of each type of block to ⅛ in. scale. Perspectives were not permitted.

Whilst the average level of the schemes submitted is fairly good, no single design consistently excels both in site-planning and in the treatment of the housing problem. Some show an excellent handling of the area as a whole; others reveal great competence in the details of domestic economy. But a scheme embodying the two virtues in a high degree is lacking. In these circumstances the assessor apparently felt it his duty to recommend that the first premium (a final payment) be awarded for the best site-plan; and the second premium (to which would subsequently be added the commission on the buildings) for the most satisfactory houses. Messrs. Ireland and Hanscombe, London, are the authors of the site-plan placed first, and Mr. George A. Boswell, Glasgow, is responsible for the houses placed second. The third premium was won by Mr. G. S. Stout, Whitehaven. In some ways it may be considered disappointing that a simple and direct award was not possible, but there is no doubt that proficiency in site-planning is not always accompanied by equal felicity in house design, and vice versa.

Messrs. Ireland and Hanscombe's design cannot be said to come near to being an all-round winner, for the degree of practical efficiency displayed in the housing arrangements is much below that exhibited in the site distribution. An open space at the centre planted with trees and flowers is the focus from which symmetrical closed vistas radiate. The junction of new with existing and proposed roads has been effected without sacrificing a balanced lay-out. By their admirable arrangement these roads provide an easy circulation of traffic, and at the same time permit of the great majority of the houses being made to face east and west, several south, and only a few north. But the buildings themselves cannot compare with those for which the second premium has been awarded.

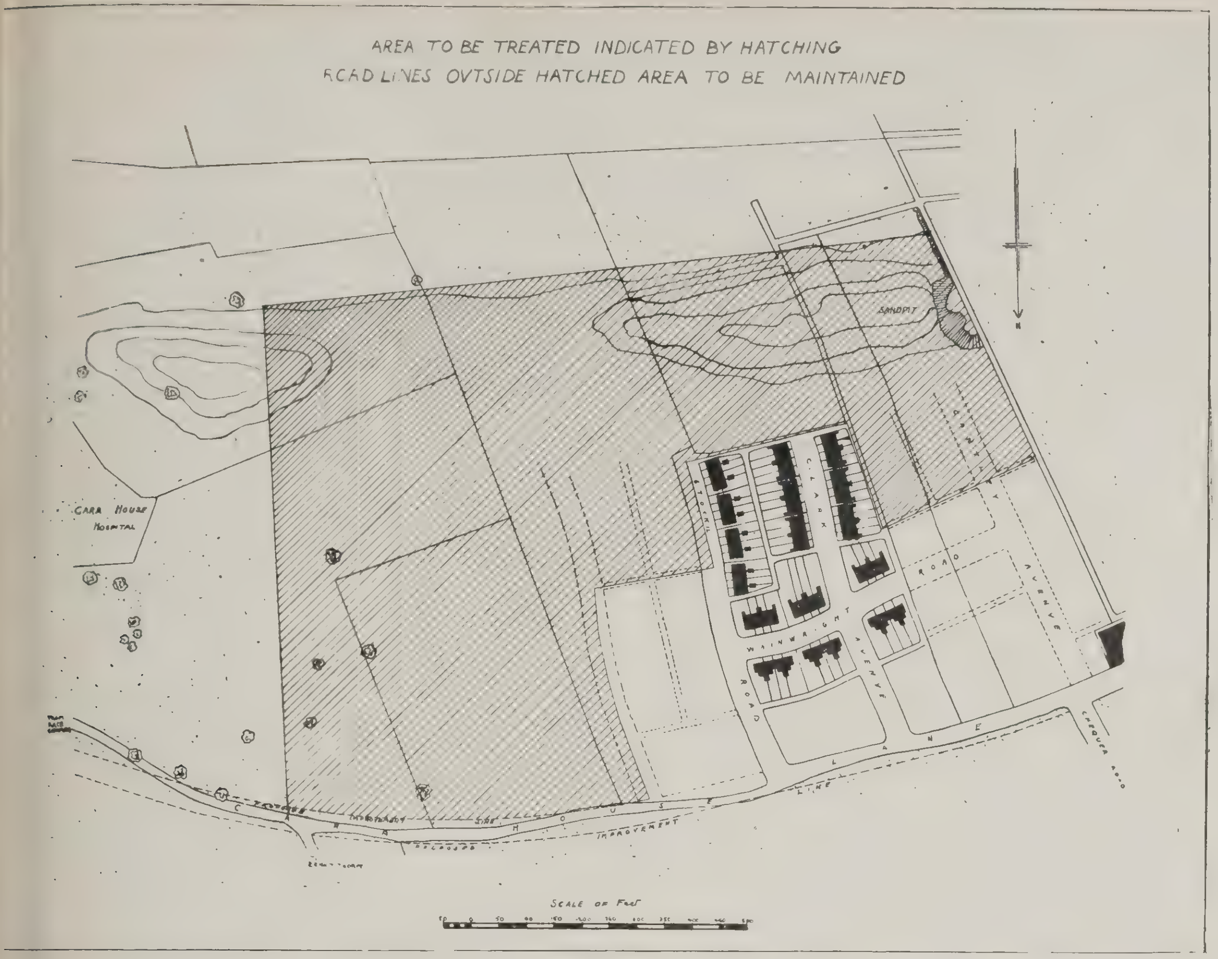
On the other hand, the treatment of the estate as proposed by Mr. George A. Boswell, though by no means bad, is not comparable in interest with that of the winning scheme. It also neglects to carry out the intention of the competition in that it does not show a sufficient number of houses on the area reserved for future development. The houses, however, are most ably designed, and meet the special needs of the case better than any others.

In its site-plan the design by Mr. G. S. Stout, allotted third place, is sound and simply worked out. The elevations show a not very certain manipulati
sash-windows and hipped roofs, and are dull
than restrained. From many aspects the scheme
bered 5 seems the work of the most competent de
in the competition. Unfortunately it breaks a f
mental condition as to site-planning—namely
one specifically fixing road lines outside the are
scribed for treatment. By this breach of a di
instruction, and by it only, there is rendered pos
most attractive lay-out—so attractive, indeed, th
cannot but wish that all restrictions relating to
tiguous road-boundaries had been removed.

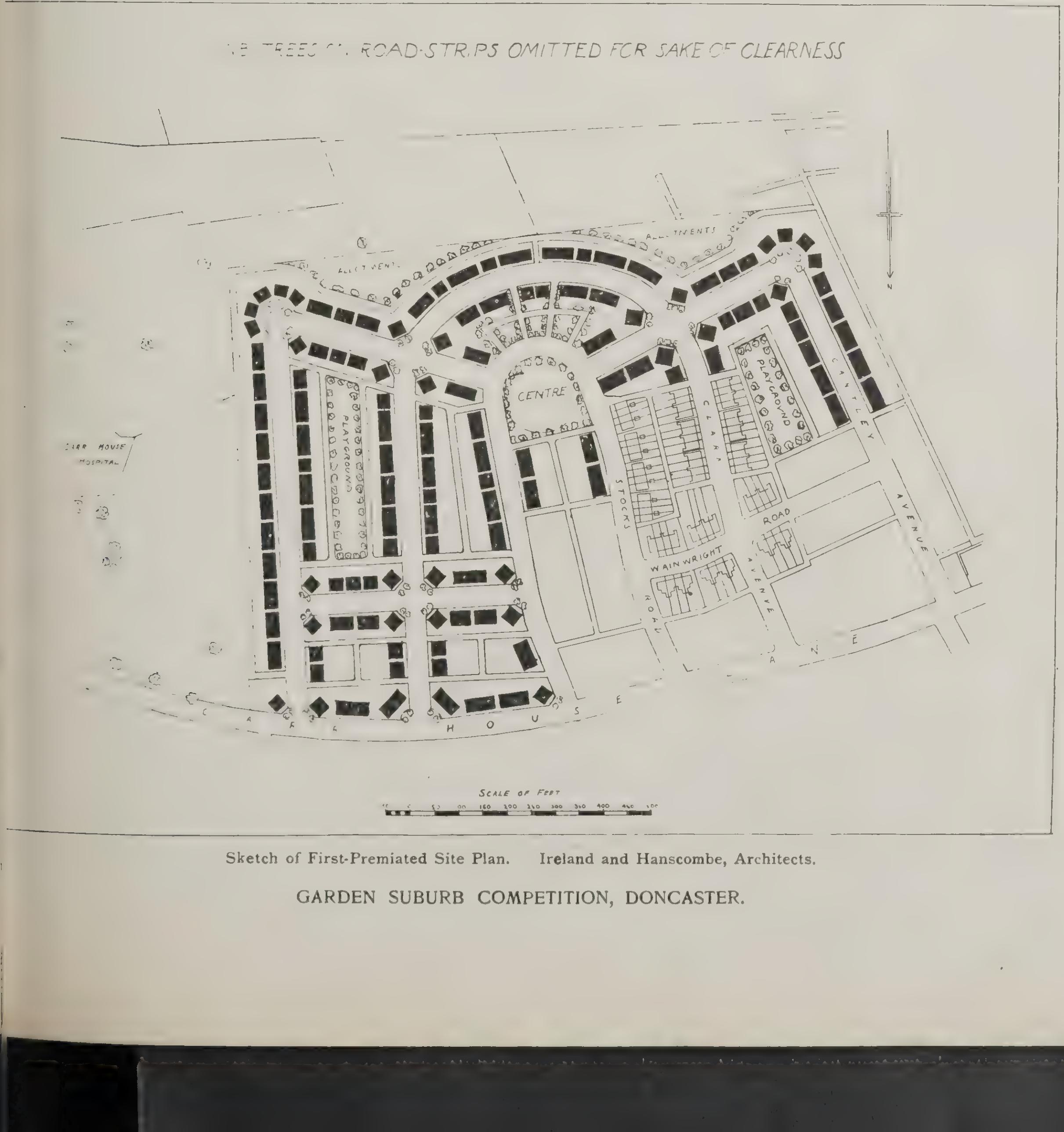
Taking a general survey of the site-plans subm
it would seem that no one has quite solved the
difficult problem—namely, the treatment of the
front of the estate, where it slopes rapidly
beyond the boundary. For this competitors are sc
to blame altogether, since they were not given
ciently definite information as to what was to b
with the land contiguous to the southern line.
theless, a careful examination of the levels at thi
should have led to the conclusion that the
would have remained untouched for a consi
number of years. For that reason it is not th
satisfactory solution to carry, as so many have
a road, the depth of one plot, within the sit
parallel to the boundary; and to flank this roa
houses on both sides, one row having of nece
northern aspect—unless, as in the case of scheme
the expedient be adopted of putting the living
at the back. (As will be seen from the accomp
sketch, the winning site-plan treats the s
boundary in an adroit fashion, which also ha
regard to the contours.) Before the site is fina
out it would seem desirable that the Corpora
Doncaster should come to some definite
regarding this neighbouring area and reserve it
nently for allotments, in which case probably t
plan would be to carry a road along the boun
the site, with houses on the north side only,
south. A rearrangement of the winning schem
be made on these lines.

In the matter of open spaces competitors'
as to what was required vary considerably. B
such extensive recreation grounds in the near
a relatively large open space was not ne
Obviously required, however, were small play
for little children—and these are very fort
placed in the first-premiated design behind t
gardens of houses.

With regard to the treatment of the site-pl
whole, there are two extremes which may be
In one it is conceived merely as a section of
tinuous piece of suburban development, wit
traversing it in different directions and devoi
focal point. Of this type Nos. 8, 74, 82, and
examples. In the other case the site is arra
self-contained lines, with no entrance exce
Carr House Lane. A compromise between
would appear to offer the best results—a com
whereby the area would have an entity of its
also lateral connection with the surrounding
With the exception of those selected by the
none of the multitude of cottage types presen
for special mention. There is a plentiful di
ingenuity in minor matters, and the usual repr
in composition and style of the characteristic
Letchworth School—leaded lights, a riot of ga
dormers, half-timbering, etc.—in short, all t
phernalia whereby distinction is so laboriously
and so certainly lost. A few are in good tast
that is as much as can be said.



Carr House Estate: Sketch Site Plan.



Sketch of First-Premiated Site Plan. Ireland and Hanscombe, Architects.

GARDEN SUBURB COMPETITION, DONCASTER.

EXAMPLES OF STRUCTURAL DESIGN.—III.

BY PERCY J. WALDRAM, F.S.I.

(*Continued from page* 204, *No.* 1060.)

Riveted Stanchion Under Eccentric Load.

Design a riveted stanchion through basement and ground floors carrying loads as Fig. 4. The first floor stanchion consists of a 10″ × 8″ B.S.B. and six 14″ × ½″ plates, and imposes a central load of 242·33 tons.

The loads at first and ground floors are as follow:

	A	B	C	D	E	
1st Floor	61·00	15·43	80·50	2·10	Nil	Casing 1 ton
Ground ,,	8·25	16 85	15·3	Nil	14·80	Casing 1 ton

First floor to ground, 12′ 6″
Ground to basement, 12′ 0″
Basement to top of grillage 2′ 2¼″

The position of girders with regard to floor levels and centre lines is fixed by data which are not reproduced.

The section of stanchion running through floors above, which requires six plates at the first floor, has obviously reached the limit at which it can be conveniently strengthened with additional plates.

The section required should be made in one piece from basement to first floor. Its selection would be largely governed by the requirements for the basement floor.

Fixity of Ends.

At the ground floor where the section would be continuous and stayed by a fourway connection, the ends can be considered fixed. At the basement and first floors the ends would be flat. As this is not a condition recognised by the Act, they would be considered as hinged, but the length for flexure from ground floor to grillage may reasonably be measured from the underside of ground floor girders to the top of the gussets, viz., 10′ 0″.

Approximate Increase of Load due to Eccentricity.

The increase of equivalent axial loading due to eccentricity of connection to webs and flanges is tabulated in the best modern section books, and will be found to average as follows:

Equivalent Axial Loads on Stanchions.

	Web Connections.	Flange Connections.
Unplated Joist Stanchions	1·5 w	2·5 w
Plated do. do.	1·25 w	2·5 w
Plated double do.	2·75 w	2·5 w

Section of Stanchion between Ground Floor and Basement.

The loads not being equal on both sides of the stanchion, the unbalanced load in each case is multiplied by the approximate coefficients for eccentricity to obtain the addition to the axial load equivalent to the effect of eccentric loading. Under Section 22 (21) (d) eccentric loadings may be considered as having become axial below the point next below them where the column is efficiently fixed.

The approximate equivalent axial load at the ground floor may therefore be taken as:—

First floor	242·33 tons	
A	61·00	
B	15·43	
C	80·50	
D	2·10	
	401·36 tons	
say	2·50	Casing and weight
Ground floor	403·86 tons	
A	8·25	
B	16·85 − 14·8 = 2·05 × 2·75 =	5·65
C	15·30 − 8·25 = 7·05 × 2·5 =	17·70
E	14·80	
	459·06 tons +	23·35
	= 482·41 equivalent axial load	

A section is therefore demanded which will carry 482·41 tons axial load on a length of 10′ 0″ with one end fixed and one end hinged. This would be selected from some list purporting to give the safe loadings under the Act on various sections. The properties of the section thus selected and shown are as follow:—

Two joists 18″ × 7″, six 18″ × ½″ plates, area 98·1 sq. inches, weight per foot run 337½ lbs., c. to c. of webs 9″, least and greatest radii of gyration 4·99 and 8·71, extreme scantling 18″ × 21″.

Calculation of Eccentricity Coefficients.

The exact value of the coefficients for eccentricity can be obtained from the formula:—

$$\text{Equivalent axial load } W_e = W\left(1 + \frac{xy}{rg^2}\right)^{*}$$

in which

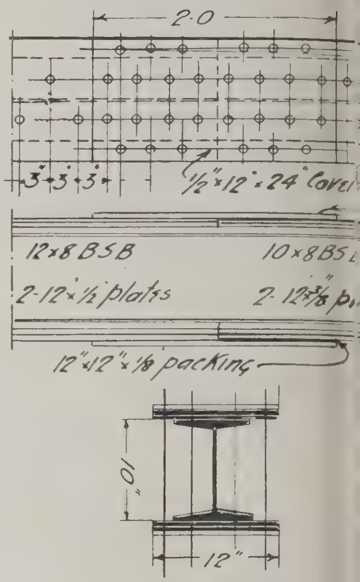


Fig. 5.

x = eccentricity in inches
y = distance of neutral ax
extreme fibres
rg = radius of gyration.

For eccentric loadings on the flan

$\frac{y}{rg^2} = \frac{10·5}{8·71^2} = ·137$, and for

loadings on the webs, $\frac{y}{rg^2} = \frac{9}{4·9}$

Girders fixed direct to the flang therefore be generally considered at a leverage of 10·5″ and w equivalent to a central load of,

$W_e = W\{1 + (10·5 \times ·137)\} =$

The web of an 18″ × 7″ joist b thick, girders fixed to the web v considered as distant $\frac{9·55}{2}$ from th of the section, and the centric lo valent to them would be,

$W_e = W\{1 + (4·775 \times ·36)\} =$

These values are slightly less approximations made, but the d is immaterial.

Equivalent Axial Load determin regard to Diagonal Bendin

It should be noted that the multiplying each eccentric loa coefficient is to presuppose be two directions simultaneously, w application of eccentric loads directions would apparently indu ing on a diagonal axis passing the centre of the section and c gravity of the loads. The total e axial load calculated with regar strength of the section in this direction would be less than th the equivalent loads calculated directions of the two principal can be shown, however,† that th bending under diagonal loads coincide with this supposed direc that the bending which tends to t is a double curve, and is consist

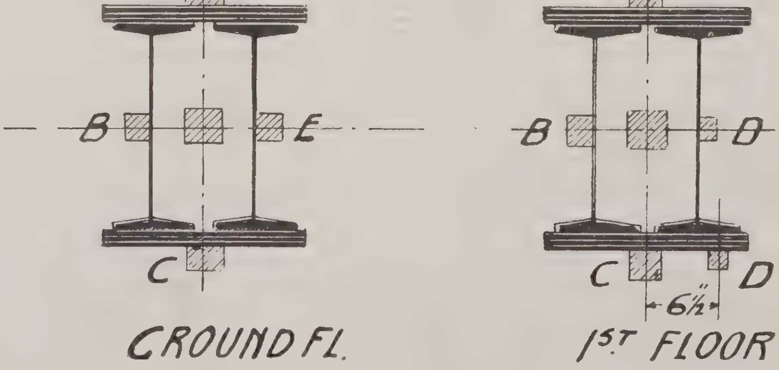


Fig. 4.

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*"Principles of Struct. Mechanics" (Batsford), p. 355.

† Cottrell's "Applied Mechanics," p. "Engineering," December 25, 1914, p. 760.

oduction of the stresses which result from the two component s in the direction of the two l axes.

ormulæ upon which are based the y axial loads tabulated in the Act ollows :—

ng Stress in Tons per Square Inch.

Both Ends Hinged. One End Fixed, One End Free.

eel $4\cdot5-\left(\frac{l}{40\,rg}\right)$ $5\cdot5-\left(\frac{l}{40\,rg}\right)$

up to $\frac{l}{rg}=100$ up to $\frac{l}{rg}=140$

Both Ends Fixed.

Mild Steel $6\cdot5-\left(\frac{l}{40\,rg}\right)$

up to $\frac{l}{rg}=160$

Both Ends Hinged. Both Ends Fixed, Both Ends Free.

n up to $\frac{l}{80\,rg}$ $4-\left(\frac{l}{20\,rg}\right)$ $5-\left(\frac{l}{20\,rg}\ \frac{l}{rg}\right)$

Both Ends Fixed.

Cast Iron $6-\left(\frac{l}{20\,rg}\right)$

s case, the least "rg" = 4·99 and nissible axial load is

$$98\cdot1\times\left(5\cdot5-\frac{l}{40\,rg}\right)$$
$$=98\cdot1\times\left(5\cdot5-\frac{120}{40}\times4\cdot99\right)$$
$$=98\cdot1\times(5\cdot5-\cdot60)$$
$$=98\cdot1\times4\cdot9=485\text{ tons.}$$

al load required to be carried is s.

of Stanchion between First Floor and Ground Floor.

loading at the first floor being egular, the connections should be l, and a small diagram as Fig. 4

axial load equivalent to these s would be most readily calculated ing the centre of gravity of all the ınd allowing for the effect of city due to its component moments e lines of the two principal axes.

istance of the c.g. of all the loads e web axis

$$(4\cdot38\times4\cdot775-1\cdot05\times6\cdot5)\div401\cdot36$$
$$=(68\cdot8-6\cdot9)\div401\cdot36$$
$$=\cdot155''$$

m the flange axis BD it is distant 10·5 ÷ 401·36 = ·53″.

quivalent axial load will therefore

$$01\cdot36\times\left[1+\left\{(\cdot53\times\cdot137)+(\cdot155\times\cdot36)\right\}\right]$$
$$01\cdot36\times\left\{1+(\cdot0725+\cdot056)\right\}$$
$$01\cdot36\times1\cdot1285=448\text{ tons.}$$

ength for flexure being at most e safe load would be : $98\cdot1\times\left.\left(\frac{144}{40}\times4\cdot99\right)\right\}=98\cdot1\times(5\cdot5-\cdot72)$ tons.

ection demanded by a lower floor meets so closely as this the nents of the next floor above, and ction of a pair of plates frequently tempting opportunity of saving sary weight. But it must be ered that as the reduction of two say from ½″ to ⅜″, necessitates a large joint plates, and often closer riveting (16 times the plate thickness), a small alteration is generally not worth making.

Pitch of Rivets.

The provisions of the Act require the pitch measured on a straight line to be not greater than 16 times the thickness of the thinnest plate. This will generally secure the essential condition that the unsupported lengths of plate between the rivets should not individually form columns more slender than is consistent with the column stress which they bear. These unsupported lengths of plate being continuous, may fairly be regarded as columns with fixed ends, and by referring to the statutory table, it will be found that a column with one end fixed and one end hinged with an $\frac{l}{rg}$ of $\frac{144}{4\cdot9}=28$ might with fixed ends sustain the same stress if the ratio $\frac{l}{rg}$ were 68.

The least radius of gyration of a column of rectangular section with a least side of $\cdot5''$ is $\cdot5\sqrt{12}=\cdot145$, and the requisite pitch would therefore be $\cdot145\times68=10''$. The three vertical rows of riveting shown are obtained by riveting the plates on to each of the joists before the whole stanchion is assembled and riveted up from the outside. It is sometimes objected to on the ground that it renders the stiffness of the section unsymmetrical and therefore tends to set up indeterminate bending moments. It represents, however, a very usual practice, and the accuracy of setting out which it demands at the yard is a practical advantage of considerable value.

Base.

The Act stipulates that sufficient rivets must be provided to transmit the load through the gusset plates of the base on to the base plates. The object of this is to prevent undue stress upon the material of a plain concrete base from a base plate insecurely stiffened by gussets which bends slightly under full load in an endeavour to conform to badly fitted ends to the joists and plates.

When the base bears direct upon the metal of a grillage this stipulation may reasonably be relaxed, especially when the ends are machined, and sufficient rivets to transmit half the load to the gussets are sometimes provided.

In the base shown, there are 136 rivets in single shear. The strength of a ⅞″ rivet in single shear is $\frac{7}{8}^2\times\cdot7854\times5\cdot5$ tons per sq. inch $=3\cdot307$. In bearing in ½″ metal $\frac{7}{8}\times\frac{1}{2}\times11$ tons per sq. inch $=4\cdot812$. The load transmitted is therefore $136\times3\cdot307=450$ tons.

The joint at the first floor level being between stanchion sections varying decidedly in size is designed as a cap and base. The cap is kept as small as is consistent with adequate fixing, and the outer edges of a stout cap-plate are well supported under the gussets and flanges of the stanchion above. The base of the latter is provided with sufficient rivets to transmit half its load through the gussets.

Cover Plate Joints.

In the design of compound stanchions in tiers there are economical and practical advantages in keeping as far as possible

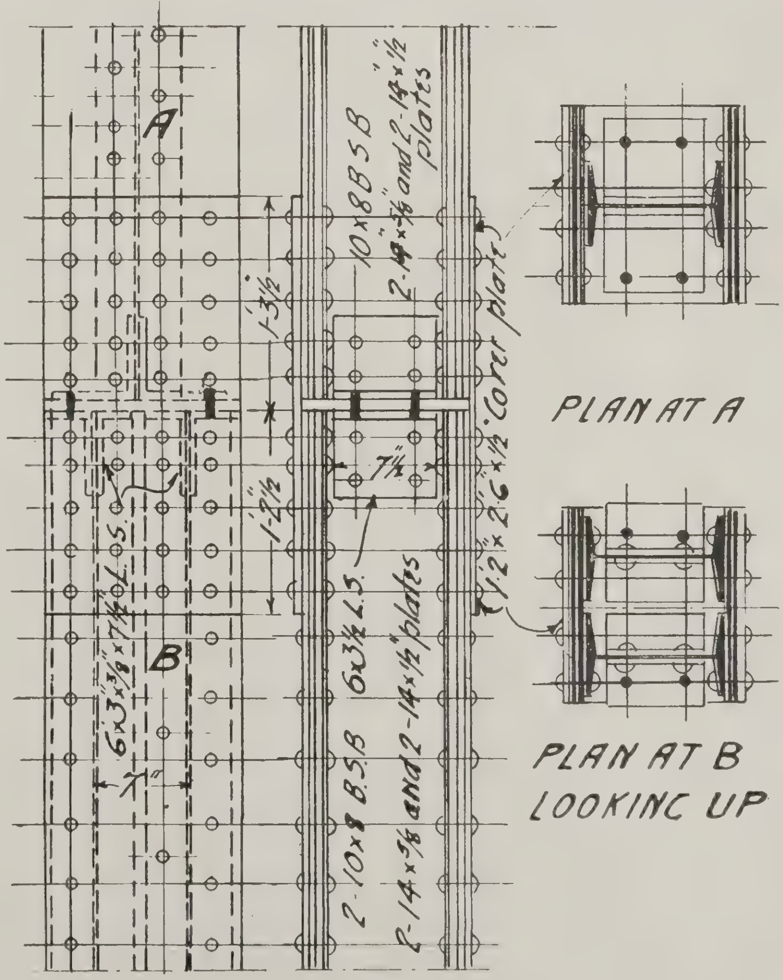


Fig. 6.

to joists of the same depth through several floors, adding to the section by means of plates.

Fig. 5 shows a typical alteration in plate thickness above a floor level. The thickness of cover plate at such points and the number of rivets to be provided in it are scarcely matters which admit of exact calculation. When the joint is near a point which in the design of the stanchion is assumed to be a hinged end, the plates are probably theoretically unnecessary, and would therefore require no cover plate at all. Midway between the supports of the stanchion and at a fixed end theoretically it should be necessary to transmit the full strength of the plates across the joint. A not unusual compromise is shown in the example given. The thickness of the joint plate is that of the thicker of the two plates joined, and sufficient rivets are provided to transmit under single shear the proportion of the total load taken by the thinner plate or cross-sectional area of $\frac{3}{8}$ plate multiplied by working stress.

Spliced Butt Joints.

For convenience in erection, stanchions are generally completed at the yard in lengths of two or three stories with splice joints. The latter are subject to the same considerations as cover plate joints, except that the points where they occur can scarcely be regarded as fixed ends. A typical detail is shown in Fig. 6. Sufficient rivets are provided to transmit under single shear one-half of the load. To be consistent, the splice plates should be thick enough to transmit this half load at $7\frac{1}{2}$ tons per square inch, but they are often made $\frac{1}{2}''$ thick for all loads. Unless the ends are accurately machined and fitted at the yard, it is advisable to introduce a fairly stout cap plate as shown to distribute over the section the effect of any small irregularity in fit.

Marking of Pillars and Girders.

A simple and convenient method of marking pillars and girders in a steel frame building with a number of similar floors is as follows :—

Each tier of stanchions has a letter, similar stanchions to opposite hand being distinguished by a subscript letter, and each built up length of stanchions is given a number in addition, the number being written after the letter.

Thus Stanchions H1 and Hx1 extend from basement to first floor, and are delivered in one piece each, and Stanchions H2 and Hx2, from first to fourth floors, are also in one piece each. For girders and joists each floor has its distinguishing letter, and each main girder and joist is numbered, similar numbers being allocated to similar members on each floor with the distinguishing letter of the floor written *after* the number of the beam. Thus 35A, 35B and 35F would mean the joists or girders occupying similar positions on the ground, first and fifth floors.

Small filler joists in bays can be conveniently marked with the numbers of the two girders between which they occur with a cross between, as 8B x 6B or 6B x wall.

Details should be fully dimensioned, but dimensions and scantlings should not be repeated unnecessarily on the same sheet.

(To be continued.)

ENQUIRIES ANSWERED.

Tenancy Agreement.

W. H. E. (Hants) writes: "A three years' agreement is entered into, expiring at September 29, 1914. In it the following occurs: 'And it is hereby mutually agreed that, should either party desire to terminate the tenancy at or after the said term, he shall give to the other of them six months' previous notice in writing.' (1) Can such notice be given to expire at any date not a regular quarter? (2) Must it expire on any one of the ordinary quarter days? (3) Or must it expire only at any September 29? Is this case on all fours with first paragraph, page 144, of 'Holdsworth: Excess in the Quantity of Notice'?"

—It is not usual to insert any clause as to a notice to quit in a three years' lease; if the occupier does not quit at the end of the three years' term he becomes an annual tenant upon the terms of the expired lease, so far as they are applicable to a tenant from year to year. This no doubt has happened here, and the tenancy has thus automatically become one "from year to year," terminable only upon the anniversary of its commencement, *i.e.*, September 29. The notice to quit legally necessary to bring it to an end is six months, terminating at any Michaelmas. The specific answers to your questions are then: (1) No. (2) No. (3) Yes.

F. S. I.

Cement and Tar Coating to Walls.

QUANTUM (Cumberland) writes: "We have recently cemented the inside walls of two byres, and afterwards coated the cement with a mixture of one gallon of tar to half a pound of pitch. The result is not satisfactory, as the tar and pitch have not hardened (after three or four weeks), and the appearance is lumpy. We shall be obliged if any of your readers can suggest a remedy."

—The mixture described appears to have too great a proportion of pitch and I am at a loss to suggest a remedy for slow hardening.

G.

Broken Asphalt for Paths.

P. N. F. (Brockley, S.E.) writes: "Please advise as to suitable filling and cement to use in conjunction with broken asphalt for garden paths. Although the asphalt is broken small, the medium would have to be of some consistency, or to be mixed with gravel or other broken material, to fill in the voids."

—Broken asphalt paving does not appear likely to prove a kindly material for making up garden paths. Probably fine shingle and hot tar would be the best matrix, and if the whole surface were tarred over and coated with sand and grit after rolling to contour, the effect would be very much that of ordinary tar paving.

G.

Road Specifications.

X. (Oxford) writes: "A road was specified to be formed as follows: 'Ground to be formed up to receive 6 in. chalk, to be rolled in on top, and 6 in. coarse gravel to include sufficient fine to bind whole together, rolled and well finished.' How thick would the total hardcore be (both chalk and gravel) after rolling, when the job was completed?"

—The amount of consolidation or reduction in thickness by rolling, both as regards the chalk foundation as well as the gravel surfacing will naturally depend a good deal on (a) the condition of the foundation or subsoil upon which it i (b) the amount or duration of the r applied, and the weight of the roller (c) the condition of the chalk and when laid, (d) and whether wat sprinkled on the surfaces to assist c dation, or whether the materials are dry. If dry-rolled (as should, of c be the case with the chalk foundatio degree of consolidation would be Under ordinary circumstances, i chalk is dry when rolled and placed dry firm subsoil, the reduction in ness would probably be about 2 in. the 6-in. loose coating would be re to 4 in. after rolling. If the sub soft and wet much of the chalk foun will sink under rolling into the soft g and necessitate the addition of more core to ensure a fair foundation. T inches of gravel surfacing, if of a stony quality and not unusually " or too full of so-called binding ma may be expected to consolidate finished thickness of about 4½ in. rolling. The final finished thickness rolling, of the chalk foundation and surface together, would not the exceed a total of about 8½ in., but depends on the *actual conditions* case as indicated above.

W. H.

Value of Plot with Circular Fron

C. J. S. (London, S.E.) writes: " be made clear by the accompa sketch [not reproduced], one plot o has a straight frontage of 150 ft., adjoining plot has a circular front 350 ft. Assuming the land to be £2 per foot frontage, it is, of absurd to say that the circular plot is £700. The straight plot would, of be worth £300. What, therefore, correct method of valuing the plo the circular frontage? For road-m charges it would be 350 ft. at so mu foot. Can the circular plot be co described as having '350 ft. fron The writer knows, of course, that the affects and regulates the price pe frontage."

—It is in a case such as this th surveyor must rely on his judgment than rule. The circular plot c correctly described as of 350 ft. fr but such irregular plots are usually entirely according to circumstance lump sum rather than per foot fr To arrive at this sum a complete ledge is necessary. For example, in the value of the land might depen very high ratio upon the actual though the expressed price might f venience be in terms of pe frontage; in a shopping distri frontage would have a value much in proportion to back land than in dential district, and in the latter th to be placed upon the plot would largely on whether the road-m charges were payable by vendor (in case their estimated amount woul part of the price) or by the purcha which case some abatement wo necessary). Assuming that th instance is applicable, viz., a resi district with road charges payable chaser, a reasonable procedure wo to work out and price the superfici of the regular shaped plot, which settled price per foot frontage is £300, compute and price the irregul at the same rate based on area, an an abatement proportionate to th mated roadmaking charges on ex frontage over the frontage which give an equal area in a plot of shape and equal depth to the e used as a basis of value.

TIES AND INSTITUTIONS.

chester Society of Architects.

meeting of the members of the ster Society of Architects, held on , the report and accounts were ap- and adopted and the following and members of Council were President, F. B. Dunkerley, .A.; vice-presidents, J. B. Gass, .A., and A. W. Hennings, .A.; hon. secretary, Isaac Taylor, .A.; assistant hon. secretary, alliday, A.R.I.B.A.; Members of , Messrs. John Ely, H. Q. Farmer, Hardisty, Edward Hewitt, Hugh P. D. Lodge, A. J. Murgatroyd, gden, J. H. Sellers, J. H. Wood- P. S. Worthington, and W. C.

Building During and After the War.

econd annual report of the coun- e South Wales Garden Cities and lanning Association states that outbreak of the war the year was rised by a steady and gratifying in the strength and activities of ciation, and although during the months there had been a natural ion in the extent of their public nda, the serious effect of the war e-building schemes, especially in o finance, had led to a great de- nt of the association's function as sory body.

council is at present engaged in ing an exhaustive investigation trend of building costs during and e war, and it is intended to pub- port on the subject.

ty-four organisations were affiliated ssociation during the year, as com- ith seven in 1913. The total re- for the year amounted to £256 ., and the expenditure to £250 , leaving a surplus on the year's of £5 8s. 7d. The council acknow- heir deep indebtedness to the y (Mr. Edgar L. Chappell) for his activities on behalf of the asso-

mphlet on "What Town-planning by Mr. D. Llenfer Thomas, M.A., rman of the council, has been which will be of assistance to ocal education authorities in the tion of schemes.

s' Clerks' Benevolent Institution.

. Higgs (of Messrs. F. and H. F. presiding at the thirty-seventh dinner of the Builders' Clerks' ent Institution at the Holborn ant, advanced some cogent and reasons why the society should be supported. He pointed out that e Legislature passed its schemes ensation for people in the employ- builders, the clerk was left out in . The clerk had, therefore, to be sated out of his own resources, or e funds of charity. Though a person, the builders' clerk did not a princely salary, and one could ct him to make much provision for when he was no longer able to is duties. The Institution was forty-nine years ago. It had since respectable dimensions, though tly so from the point of view of A sum of £172 per annum was from the bequests of "pious The pensions given to old clerks ir widows amounted to £725 per s the expenses came to £100, a sum of £650 had to be got annually. Subscribers gave £170 yearly, leaving £480 to be gained by means of a special appeal. The benefits given to the recipients of the funds amounted only to about £2 per month, and yet the committee of management had not been able to add more pensioners to the list. It was necessary to give liberally, because during the current year more would be spent than up till the present moment had come in. The contributions announced during the evening amounted to close upon £300.

A Notable Collection of Architectural Slides.

At the third meeting of the session of the Gloucestershire Architectural Association, held at the city of Gloucester on Friday, April 30, Mr. Walter B. Wood, A.R.I.B.A. (Vice-President), exhibited a large collection of lantern slides prepared from photographs taken by the late Dr. Oscar Clark. The President, Mr. T. Overbury, referred to the splendid response to the call for volunteers made by the members of the Association, and said that the first member to be in the firing line, Mr. S. W. Thurston, had now been invalided home, after thrilling escapes. He thought that it would be the wish of the members that the Hon. Secretary should write to Mr. Thurston congratulating him upon his safe return and expressing their appreciation of his patriotism. Continuing, Mr. Overbury referred to the death of one of the Association's most respected Honorary Fellows, Mr. John Sawyer. After a brief reference to his career and the position he had attained in the archæological and architectural world, he proposed that a record of John Sawyer's services to architecture should be inscribed in the minute-book of the Association. Referring to the late Dr. Oscar Clark, another valued Honorary Fellow, Mr. Overbury said he was one of the most regular attendants at the meetings and also at the annual excursions, where he was a most enthusiastic photographer. With a portrait of Dr. Clark on the screen Mr. Wood gave a brief account of his career and his architectural and literary interests, and then proceeded to show a collection of slides given to him by Mrs. Clark, which he had classified into the following series: (1) English Church Work; (2) English Domestic Work; (3) Continental Cathedrals and Churches; (4) Continental Street Scenes.

BRITISH INDUSTRIES FAIR.

A large number of invitations were issued to wholesale buyers by the Board of Trade for the British Industries Fair, which opened at the Royal Agricultural Hall on May 10, and buyers who have not received cards and who wish to attend should communicate at once with the Board of Trade, 32, Cheapside, London, E.C. The Fair, which is open only to genuine traders, will close on May 19. Invitations to Continental buyers were issued some time ago, and buyers from the Continent, as well as from Canada, America, and other distant countries have signified their intention to visit the Fair and will probably attend in large numbers.

The trades to which it has been found necessary to restrict the Fair are: China, earthenware and glass, cutlery, electroplate, printing, stationery, jewellery (including drapers' jewellery and haberdashery), toys and games, and fancy goods, all trades in which a large proportion of the goods hitherto consumed in this country have been imported from abroad.

In estimating the opportunity which buyers will have of arranging at the Fair to lay in stock it is to be remembered that although the exigencies of space have limited the number of exhibiting firms to 600, these are all manufacturers, and they consequently represent British industry more thoroughly than would be the case had factors and wholesale dealers been included in the total.

The 600 exhibitors at the British Industries Fair have only been allotted space by considerably reducing the sites applied for in the majority of cases.

The Board of Trade are endeavouring to assist buyers as far as possible, and interpreters have been engaged, special inquiry offices organised in each of the trade sections, and a branch of the Commercial Intelligence Branch of the Board of Trade established in the hall, so that the fullest information on such matters as commercial statistics, customs tariffs, shipping and transport, commercial products, and similar matters may be at the disposal of exhibitors and visitors.

BOOK NOTICE.

Reinforced Concrete: Principles and Practice.

The American literature on reinforced-concrete construction is markedly in advance of English work, and has some pretensions to the value of Continental literature on the subject. The books published by the McGraw-Hill Book Co. are always worthy of attention, and these volumes are no exception to the rule. The University of Wisconsin, from which, as is stated on the title-page, they have their origin, has done some good research work, and the fruits of its labours merit consideration.

The university has made specially valuable tests in its laboratories on the value of the use of Kahn bars in the reinforcement of concrete beams. The experimenters found that "in the beams with loosely attached web members and straight horizontal reinforcement the final failure occurred through slipping of rods either before or just after the yield point of the metal was passed, when the load fell off rapidly. This did not occur in tests of the beams with rigidly attached web members. The Kahn bar beams failed in tension at the centre, but in these latter beams the steel was stressed considerably beyond the yield point, and failure was very slow. The Kahn bar beams show considerably greater strength than the plain bar beams." In fact, the Kahn beams carry from 20 to 40 per cent. more load than the beams reinforced with ordinary commercial steel.

The practical spirit which led to these tests is observable throughout the volumes before us, although the theoretical foundations of the science are none the less well and truly laid. The first volume deals with fundamental principles of design, as these are exemplified in slabs, beams, and columns. Volume II. is mainly concerned with the application of the fundamental principles of the first volume to the design of specific examples. The special merit and value, however, of this second volume lies in the excellent practical details illustrated by sketches and letterpress. A frequent trouble with reinforced-concrete buildings lies in the fact that while they are competently designed from the engineering point of view, the architectural and tradesmanlike details of window and door fittings, the combination of brickwork with concrete, the finish of staircases for their special purposes, etc., have usually not been thought out with sufficient care. A study of this volume should go a long way to remedy that defect. That part of the volume which deals with the actual construction is extremely well done and will repay a perusal by contracting specialists. These volumes are among the most useful that have been issued in the English language for some considerable time. It is not possible to praise too highly the profusion and quality of the illustrations.

"Reinforced Concrete Construction." By George A. Hool, S.B., Associate Professor of Structural Engineering, the University of Wisconsin. Prepared in the Extension Division of the University of Wisconsin. First edition. Third impression, corrected. Volume I., Fundamental Principles: including numerous tables and diagrams to facilitate the calculation and design of Reinforced Concrete Structures. 254 pages, illustrated. 1912. Volume II., Retaining Walls and Buildings. Drawings by Frank C. Thiessen, S.B., Instructor in Structural Engineering, the University of Wisconsin. 666 pages. 1913. McGraw-Hill Book Co. (London: Firm Hill Publishing Co., 6, Bouverie Street, E.C.). Vol. I., 10s. 6d. net; Vol. II., 21s. net.

NEWS ITEMS.

St. Peter's Square, Hammersmith.

St. Peter's Square, Hammersmith, which has been bought at a cost of £7,940, has been formally declared open to the public by the Mayor.

School Scheme Held Up.

Sutton Coldfield Council have received a communication from the Warwickshire County Council stating that, in view of the Treasury and the Local Government Board being unable to entertain applications for sanction to new loans for the present, it is not proposed to proceed with the building of the High School for Girls beyond getting out the plans.

Louvain Library.

The Governors of the John Rylands Library, Manchester, in December last, decided to give practical expression to their sympathy with the authorities of the University of Louvain by offering to them as a nucleus of a new library a gift of books to be selected by the librarian from the stock of duplicates in the possession of the library. A list of the works forming the first instalment of the gift, and numbering upwards of two hundred volumes, was drawn up to accompany the offer. In the April "Bulletin" of the John Rylands Library, it is stated that as the University is at present dismembered and without a home, the governors have undertaken, at the request of the Louvain authorities, to house the volumes until such time as the new buildings are ready to receive them.

L.C.C. School-Building.

Two communications with regard to the scheme for the reduction of the size of classes were laid before the London Education Committee last week. This scheme, it may be remembered, involves a good deal of new school building. The recent Treasury Minute regarding municipal borrowing held up the scheme. Negotiations were opened with the Government, and subsequently the Government agreed that the prohibition should not apply to this scheme. In a communication to the L.C.C. Education Committee the Treasury said: "In regard to the expenditure on schools His Majesty's Government have decided that in all the circumstances they cannot now ask the London County Council to postpone the work." It will be noted that the Treasury say the "Government" have decided. Their usual phrase is "My Lords," which is used in this same letter in reference to other matters. A letter from the Board of Education dated May 3, says: "I am directed by the Board of Education to state that they have received from the Lords Commissioners of His Majesty's Treasury a copy of their letter addressed to the London County Council on April 24. The Government having decided not to ask the Council to postpone the work, the Board would be glad to be informed that the school building scheme of the Council will be proceeded with in accordance with the existing arrangement between the Council and the Board."

TRADE AND CRAFT.

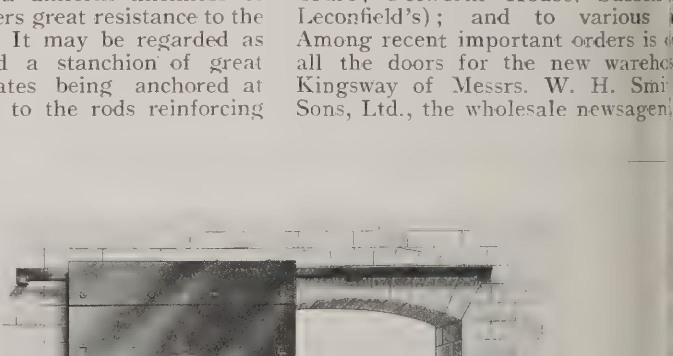
A New Type of Fire-Resisting Doors.

Messrs. Chubb and Sons, the lock and safe makers, have issued from 128, Queen Victoria Street, London, E.C., an illustrated booklet giving particulars of their new patent "Stelocrete" fire-resisting doors. For these it is claimed that they are of an entirely new kind, designed on scientific principles. They contain a minimum of steel, which conducts heat, and a maximum of non-conducting concrete filling. According to Messrs. Chubb's booklet, the steel casing fulfils several objects. It forms a hard skin capable of being nicely painted or otherwise finished; encloses compactly the concrete, which cannot break away even if its surface becomes friable under excessive heat; protects the concrete from the force of water from the fire-hose; provides small apertures at each indentation through which escape the gases or steam generated by fire and water; and is a correctly disposed tension member for both surfaces to resist the tendency to distortion common to nearly all materials under the stresses of heat followed by rapid cooling. A selected calcined aggregate of little weight is contained in the concrete filling, which is well proportioned and sets very hard.

The door has a uniform thickness of 2 in., and thus offers great resistance to the passage of heat. It may be regarded as both a beam and a stanchion of great strength, the plates being anchored at every indentation to the rods reinforcing the concrete. A "Stelocrete" weighs no more than a plain ha iron-plate door, and doors of "Stelo construction are made in strict acco with the requirements of the Fire Committee, by whom it has bee proved. One of these doors has bee jected by the British Fire Preventio mittee to their severest fire test, a the result, has been certified as af "full protection (Class B)," which highest classification. The test was hours' firing in a brick furnace, wall of which the door was fixed. temperature aimed at was 2,000 Fah.; actually it reached 2,040 Fah., and the face of the door agai fire became white hot. Yet the temperature, 14 in. away, never ex 125 degrees Fah., and a piece of paper only 12 in. from the door w scorched. It will be remembere aluminium, brass, copper, and silve below 2,000 degrees Fah., and ca melts at 2,200 degrees Fah. At the the four hours' firing a stream of at a pressure of 90 lb. per square inc directed for five minutes point against the face of the door which ha in the fire. Neither fire nor water through the door.

Messrs. Chubb and Sons fasten "Stelocrete" doors at six points—b hinges and by bolts shooting out i directions. The bolts are usually by a lock. Sliding doors are held wall at four points—by two Z stops front edge and two clutches on th edge. Special antifriction steel ball r are fixed to the door by a plate, forms a cover and an engagement w top rail. The accompanying illus shows a "Stelocrete" sliding door plete with top rail, brackets, anti steel ball runners, two stops, an clutches.

"Stelocrete" doors have been s to the London and North-Western way, Euston; the County M Truro; Petworth House, Sussex Leconfield's); and to various Among recent important orders is all the doors for the new wareho Kingsway of Messrs. W. H. Smi Sons, Ltd., the wholesale newsagen



"STELOCRETE" SLIDING DOOR.

'HITE LEAD COMMITTEE'S REPORT AND RECOMMENDATIONS.

s subject, some aspects of which are commented
ur editorial columns, we have received a communica-
h has been written on behalf of the United Kingdom
ad Corroders. Its chief points are as follows, but a
ions have been necessary. For the statements made,
opinions expressed, we, of course, take no responsi-

Editors of* The Architects' and Builders' Journal.
–After nearly four years of consideration, the Depart-
ommittee, which was appointed on January 20, 1911,
r the use of lead compounds in the painting of
has published its report. The substance of the recom-
ns is the complete prohibition of white lead in paints,
only by the allowance of a percentage of the metal,
some manufacturers of the so-called leadless or zinc
nts declare to be necessary for their manufacture.

unfortunate that English manufacturers of white lead
ad were not given the opportunity of being represented
ommittee. This omission made it all the more neces-
there should be full publicity, but the Committee
o hold its sittings in private. There are, of course,
s for this course, but on the other hand the procedure
Commission would have given that publicity which
ntial. . . .

n it appeared from such slender information as could
ed informally that the Committee made no effort to
e best scientific evidence and did not propose to avail
es of the mass of experience and information collected
bject in nearly all Continental countries, the manufac-
white lead and red lead decided to tender such
at their own expense. Representatives of Continental
, mostly of official or semi-official position, and in
tances of international reputation, were invited on the
of the manufacturers to tender evidence before the
ee. Very little indication of the weight or tendency of
lence is discoverable in the report. . . .

first brief perusal of the report confirms the expecta-
ich one would form of enquiries conducted by such
and on such lines as have been indicated. The value
dence in favour of regulation as an alternative to pro-
is belittled or swept aside. The advantages are barely
d, and the difficulties are magnified. The conclusion
e regulation is difficult, therefore prohibition is neces-
resents rather a counsel of despair than an attempt to
with the problem.

danger attendant on the use of paints—whether lead
is due to dust. The dust is produced by the dry rubbing
ocess. To avoid the dust is to remove the danger.
ntal countries have already appreciated this point and
dry rubbing down. It is on these lines that the pro-
o be solved, yet the Departmental Committee have not
ly considered the question from this standpoint.

ng the conclusions of the Committee is one that no
of the various employers' associations could refer to
matic attempt made in the past to discover a satisfac-
stitute for lead in the manufacture of paint. We should
ught the correct conclusion was that in several hundred
ery attempt to find a substitute as cheap, as practical,
seful, has failed. . . .

results of trials on work, which is insignificant com-
ith the whole volume of painting work done every year
nd, have appeared to the Committee to justify them in
hat 'the experience of the Office of Works is sufficient
nt a measure of prohibition of white lead. . . .'
easure of prohibition,' as interpreted by the Committee,
tion of the industry. . . .

verdict of the Committee will, we think, not find general
ce, especially as it is at variance with the opinion of
t experienced technical member of that body who pre-
Minority Report. It is much more in accordance with
d of legislation in this country to proceed by way of
e measures, rather than absolute prohibition, until that
been proved to be necessary.

benefit to be derived from simple regulations is clearly
y the result of those prescribed under the Factory and
ops Act in our own businesses. In 1899 the official
f lead poisoning showed 399 cases in white and red lead
tories, reduced under regulations to thirty-six in 1913.
inly would seem wiser to introduce effective regulations
aking the drastic step of abolishing a British industry
lacing the painting material trade of this country in the
f foreign manufacturers.—Yours faithfully,

"R. M. Johnson,
half of the United Kingdom White Lead Corroders."

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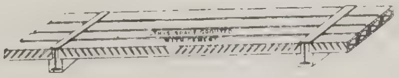

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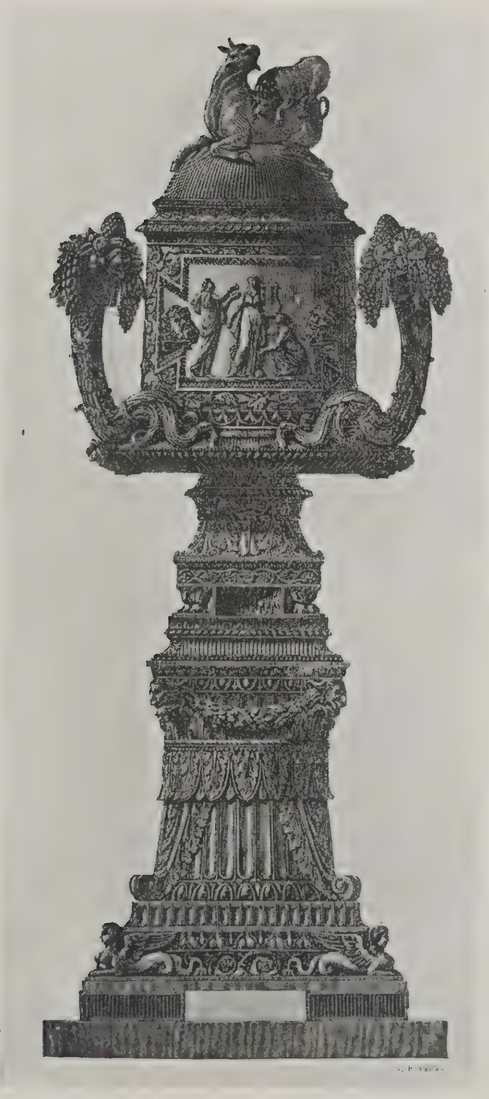
THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, May 19, 1915. Volume XLI. No. 1063.

No. 136.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 19, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1063

EDITORIAL.

THAT mildest-mannered and most genial of sculptors, Sir Francis Chantrey, R.A., might well have hesitated to leave his fortune to the Royal Academy if he could have foreseen the heartburnings that perpetually attend its administration. Up to last year, the works of art purchased for the nation out of the Chantrey Bequest had cost £85,802 5s. for 152 works, an average of £564 each, and every penny of this expenditure would seem to have been vigorously disputed. That is to say, hardly a single purchase has been allowed to pass unchallenged. It is so easy to contend that if you buy a painting it would have been wiser to buy a statue, or *vice versa*; or that it is wicked to purchase the meretricious work of A and leave "wretched, meritorious B" to languish, and so on.

* * * *

To Mr. Reginald Blomfield we ought to feel grateful for giving a new turn to the everlasting controversy. He has entered the lists not to dispute what ought or ought not to be bought, but who should be the buyers; and one almost regrets that he did not really originate this new phase, but has simply picked up with the keen point of his doughty lance the glove thrown into the arena by the Committee of the Trustees of the National Gallery. He objects strongly to the proposal "that legislation be undertaken in order to place the Chantrey Bequest on a sound footing and to vest its administration in the Trustees of the Tate Gallery." It is a Gilbertian proposal, if, as Mr. Blomfield assumes, "the Trustees of the Tate Gallery are identical with the Trustees of the National Gallery, and the Trustees of the National Gallery are identical with members of the Committee" who put it forward. What Mr. Blomfield regards as the gist of the Committee's complaint is—and it could not be better put than in his own terse sentences—"that they don't like the pictures selected by the President and Council of the Royal Academy, and think they could choose very much better ones themselves." Also, it may be presumed, they would show equal confidence in their choice of graven images.

* * * *

Mr. Blomfield thinks it "surely strange" that amateurs in art "should prefer their own judgment to that of men who have made painting and sculpture the business of their lives." This must be merely a dialectic assumption; for Mr. Blomfield's experience as a practising architect must have been very unusual if it has not brought him, as clients, specimens of the amateur who infinitely prefers his own judgment to that of the most eminent professional man: which often happens in theology and law, less commonly in medicine, and with high frequency in the arts. Sir Martin Conway seems to approve this *bouleversement*. He writes: answer to Mr. Blomfield is very simple. N would dream of appointing a committee of coo pronounce on the quality of a dinner. The pr the pudding is in the eating. It is the same works of art: they are made by artists t pleasure to other people. It is for the appealed to to say whether they are pleased for artists to say whether they ought to be.' that matter is settled out of hand and once f One would not have been greatly astonis Sir Martin had closed triumphantly with "So now!"

* * * *

Also, since we are not spared "the proof pudding," the cold neglect of the conclusive ment from "the piper and the tune" is painful. The situation yearns for it. With Sir Martin's short way with heretics lacks th familiar air of absolute finality that one exp such matters. If the payment of the pip been adduced, Sir Martin's case would hav unanswerable. As the matter stands, we bold to suggest a certain infelicity in the cc of cooks and Academicians, pictures and pu Not but what "taste" is involved in every ins But taste is in several kinds—as your æstheti gustatory, and haply your controversial—a confuse these varieties is to obscure the issue all or any of these tastes may chance to verted; or they can be educated to polite cise. Who is to educate them? The coo artist, the moral philosopher; but if these are to produce only what the people want certes, your cook and your artist are ali caterers, perhaps pandering to a mere depra

* * * *

This doctrine may not hold. For though i for the cook to say, "This shall ye eat," neit that other artist to declare, "This shall ye ac each of these may of his skill winnow and re "taste" that grows by what it feeds on drawing it by degrees from its grosser ap Sir Martin, who has been a professor of the fi knows this very well; but in his anxiety t his answer to Mr. Blomfield "very simple" syncopated his data to the detriment of hi ment. If, indeed, "it is for the people ap to to say whether they are pleased, not for to say whether they ought to be," then dov all Slade Professors and such, and determi case by the counting of noses. Which simple" policy would settle the question t the National Gallery Trustees and the Academy by abolishing both; while it wo to rest the eternal wrangle about the C Bequest by submitting selection to the popul ıethod would silence controversy as to the of the purchases; for it would leave not the ,t room for doubt that we should secure for tion the worst possible picture or statue on occasion. The people would be pleased; t is not for artists to say whether they ought Thus the artist's function is beautifully simpli- playing to the gallery; but is it thereby ed?

* * * *

can it be seriously contended that the Trus- the National Gallery are better judges of ın are the Royal Academicians who ad- r the funds of the Chantrey Bequest? Mr. ld says: "The Trustees of the National are gentlemen of unblemished reputation ninent social position, but, when all is said ne, they are only amateurs in art," and the ıs between him and Sir Martin Conway is r or not intimate knowledge of art is a dis- ation in the selection of works of art. At ght it seems absurd to raise such a question; t it must be admitted that there is a certain t of truth in Sir Martin's contention, although ıld wish that he had put it forward less dogma- and sententiously. Probably he had in mind ejudices and prepossessions, the pedantries, lousies, of professionalism, which are apt to cate pure judgment; but there is no reason oose that amateurs are entirely free from all ements of corruption. It cannot even be d with confidence that the amateur knows than the professional "what the public " because it happens that in this case (if s any force in Sir Martin's assumption) the sional before us is a man who must have suc- in giving "pleasure to other people."

* * * *

py is the artist who, in giving "pleasure to people," has not been compelled to abate hat upon his own ideals. We have all heard ıe poets' poet," "the actors' actor," and so nd it would not surprise us to hear that there artists' artist, an architects' architect. What his imply? That the professional is ahead public, because the phrase insinuates, if it ıot necessarily imply, that the professionals' ite is seldom or never at the same time the s favourite. Often he becomes so at last direct result of professional and critical ı, which is often fundamentally right what he divine amateur and the fickle public are d when they ought not to be. Nor must it be ten that purchases for a national collection be made with a higher object than that of ring the popular whim of the moment, or tering ignorant misconceptions of art, and whole we have not the slightest difficulty in ng with Mr. Blomfield that no advantage could rom the transference of the Chantrey Bequest he hands of the Royal Academicians to those Trustees of the National Gallery.

* * * *

ıost formidable difficulty in town-planning is struction of the railways, and the absence, deliberate suppression, of the town-planning in those who control them. An exist- ailway is often so situated as to stultify ost promising lay-out; and the Hampstead f a year or two ago shows that, unless us and determined resistance is offered, a y extension may, for aught its promoters completely ruin the best-laid scheme of town- ng. Trouble with a railway has arisen with t to the scheme for which the Town Council is applying for authority. In this instance, however, it is not evident that the "permanent way" comes into the question, unless that term can be applied to the chronic antagonism of railways to matters of amenity. It appears that the Corporation scheme includes five acres and a half of ground belonging to the Glasgow and South-Western Railway Company. Upon this land the company have the power to build houses, and it may be supposed that they wish to reserve a right to build them in their own way, rather than in accordance with the scheme. Otherwise it would be difficult to account for their hardihood in asking the commissioner for the Local Government Board to exclude this land from the inquiry. Naturally the commissioner declined to comply with this impudent request, whereupon the representative of the company calmly protested against the inquiry being held, and declined "to intervene further" in it. But the offensive is to be resumed in other ways, and we trust that the Corporation will stand to its guns. Railways enjoy too many privileges which they have abused to the uglification of their environment; but they must be shown that they may not aim at the heart of the Town-planning Act.

* * * *

Watford Master Builders' Association have extorted from the Urban District Council something in the nature of an apology for a little misadventure arising out of an experiment in the employment of "direct labour." It was complained by the Association that the Council were paying their labourers, for work on a sewer, eleven hours' wages for ten hours' work. As there is a wages agreement between the Association and the Labourers' Union, and as, in their contract conditions, the Council enforce the recognised rate of pay for the district, it is obvious that their action prejudices the Association in two ways—first by depriving contractors of the opportunity of doing the work, and then by further competing with them in the matter of wages. In the event, the Council have stated that "what has been done was due to a misunderstanding" and they have had the grace to add an expression of regret "for any trouble or annoyance your members have been caused thereby." In commenting on the case, the "West Herts and Watford Observer" remarks: "We should imagine that by this time they [the Council] must all be heartily sick of this first experiment in the employment of direct labour. Our contention that the work would have been done more expeditiously and at less cost by a contractor can now hardly be controverted." It were as hard, indeed, as to controvert an axiom.

* * * *

Liverpool Cathedral has now reached what is, to the professional student of building, its most interesting stage—that at which it reveals, so to speak, its anatomy, when the architect's intentions are visibly taking shape, and the observer's imagination may be freely exercised in "wondering whereto this thing may grow." For a great building like Liverpool Cathedral really grows under its architect's hand. Mr. Scott is being very wisely allowed uncommon latitude in the modification and expansion of his earlier conceptions, and the ultimate result will be a far finer building than that at first conceived. Members of the large party of Liverpool and Manchester architects who were recently conducted over the cathedral by Mr. Scott must have envied him his rare opportunities of developing and maturing his plans. Mr. Scott is reported to have said on this occasion that, "in carrying out the designs, he aimed more and more at securing the effects of repose and grandeur, and with that end in view he was more and more adopting horizontals rather than verticals." It is a development upon which Classicists may heartily congratulate him.

HERE AND THERE.

THE illustrations being the chief source of attraction in the architectural journals, it may be of interest to explain very briefly how these are produced. In the old journals the wood-cut was the only available means, and in those days there was no such thing as getting an illustration made in less than a week. Later the lithographic plate came into use, and for a long time held the field completely, but the development of the process block made a change inevitable, so that to-day, while the lithographic plate has not been altogether given up, "zincos" and "half-tones" have practically superseded it. The zinco or line block is suited only for illustrations in black and white. Everything has to be in pure line, any effect of tone being gained by lines of different thickness or at different distances from one another, or by hatching or stippling with dots. There is no possibility of making a line block from an original having solid tone on it; that is to say, a line block of the plan of a building can only be obtained if the plan is in black and white, and without heavy wash on any part of it. For all illustrations which have tones in them, whether the original be a photograph, a wash drawing, or a line drawing rendered or coloured, the half-tone process must be used. Both processes employ photographic means and both are mechanical. In the case of the line block the original is set up in front of a camera and photographed on to a thick glass plate. The negative thus obtained is put in a frame for printing by electric light, but instead of the print being made on a piece of sensitized paper, as in ordinary photography, a sheet of zinc with a specially prepared surface is used. The surface has a coating of gelatine sensitized with a bichromate compound, and the result is that those portions of the surface on which the light has acted, *i.e.*, the parts corresponding to the lines on the original, become insoluble when the plate is immersed in water, the portions which have not been affected by light in the printing being washed away. This gives a reproduction of the original drawing in gelatine lines on a zinc plate. By means of a roller these lines are given a coating of litho ink and are afterwards dusted over with the "resist"—a composition of bitumen. The plate is then placed in a bath of nitric acid, which attacks the zinc, but cannot eat away the lines, these being protected. The resist is subsequently cleaned off, and the result is a zinc plate with the lines in relief, which plate when mounted on wood to type height—practically one inch—is ready for use.

* * * *

In the half-tone process the procedure is as follows: The original is photographed on to a sensitized glass plate, but between the camera and the original is placed the "screen," which is the essential feature of the process. This screen consists of two glass plates ruled with parallel lines, the plates being bound together so that the lines of one are horizontal and the lines of the other are vertical. The screen, though not at all large, being for ordinary purposes about a foot square, is a very expensive item in the equipment, costing perhaps £50. This high cost is due to the difficulty of manufacture, as the lines have to be ruled with a diamond and then filled with an opaque substance. The lines are extremely close together, ranging for ordinary purposes from 65 to 150 per inch. The 65 screen is the one used in newspaper illustrations; the 150 screen is the one used for the half-tone illustrations in this journal. The effect of the screen is to divide up the whole of the image into a series of dots. The negative thus produced is printed on
to a sensitized copper plate, and a process of e
similar to that already described is gone th
The dots are not separately visible on a block
with a fine screen, though they are very noti
in newspaper illustrations. But however fi
screen, they can easily be seen under a magi
glass. The centre of each dot is equi-distan
its neighbours, and the effect of tones is gai
the dots being eaten away by the acid more
high lights than in the shadows. Thus,
finished block there are smaller points to ta
ink in the light portions than in the heavier
while in the deep shadows the dots are prac
not eaten away at all, and the surface of
portions is unbroken. It may be added t
printing from the half-tone block a special p
necessary, one finished with kaolin, or china clay
gives a perfectly level surface, and, incidenta
gloss that many object to. But, within limits
ticable costs, there seems to be no possibi
overcoming this latter defect.

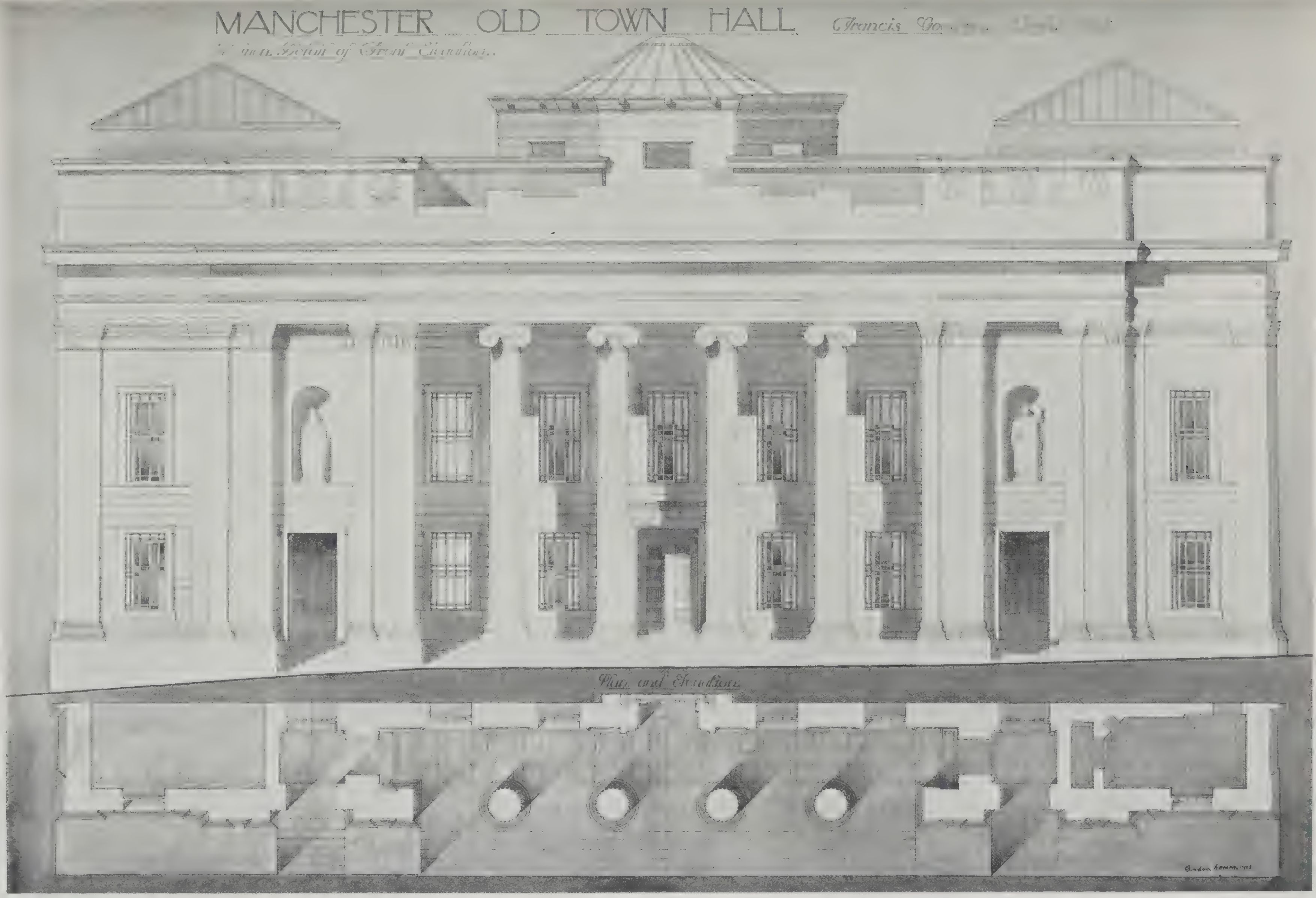
* * * *

The note that appeared in these columns
weeks ago anent the architectural merit
R.I.B.A. façade in Conduit Street found its w
the Institute Journal, with some supplementa
ticulars; and I now notice that its repub
there has drawn forth another little note, fr
J. D. Crace, F.S.A., Hon. A.R.I.B.A. Add
" humble endorsement" of my own opinio
Crace says: "It is, perhaps, fortunate that fi
reasons will keep any project of alteration
background for many years. The Institute
plain, well-proportioned, and not undignified
businesslike, and not inviting criticism. Le
content. A walk round the neighbourho
hardly convince the Council that modern alte
with architectural symptoms, have done m
improve upon the old houses, or added to t
nity of the streets and squares affected." Ce
the Council could not say that what is going
by in Regent Street is any recommendation
modern spirit. So "let us be content."

* * * *

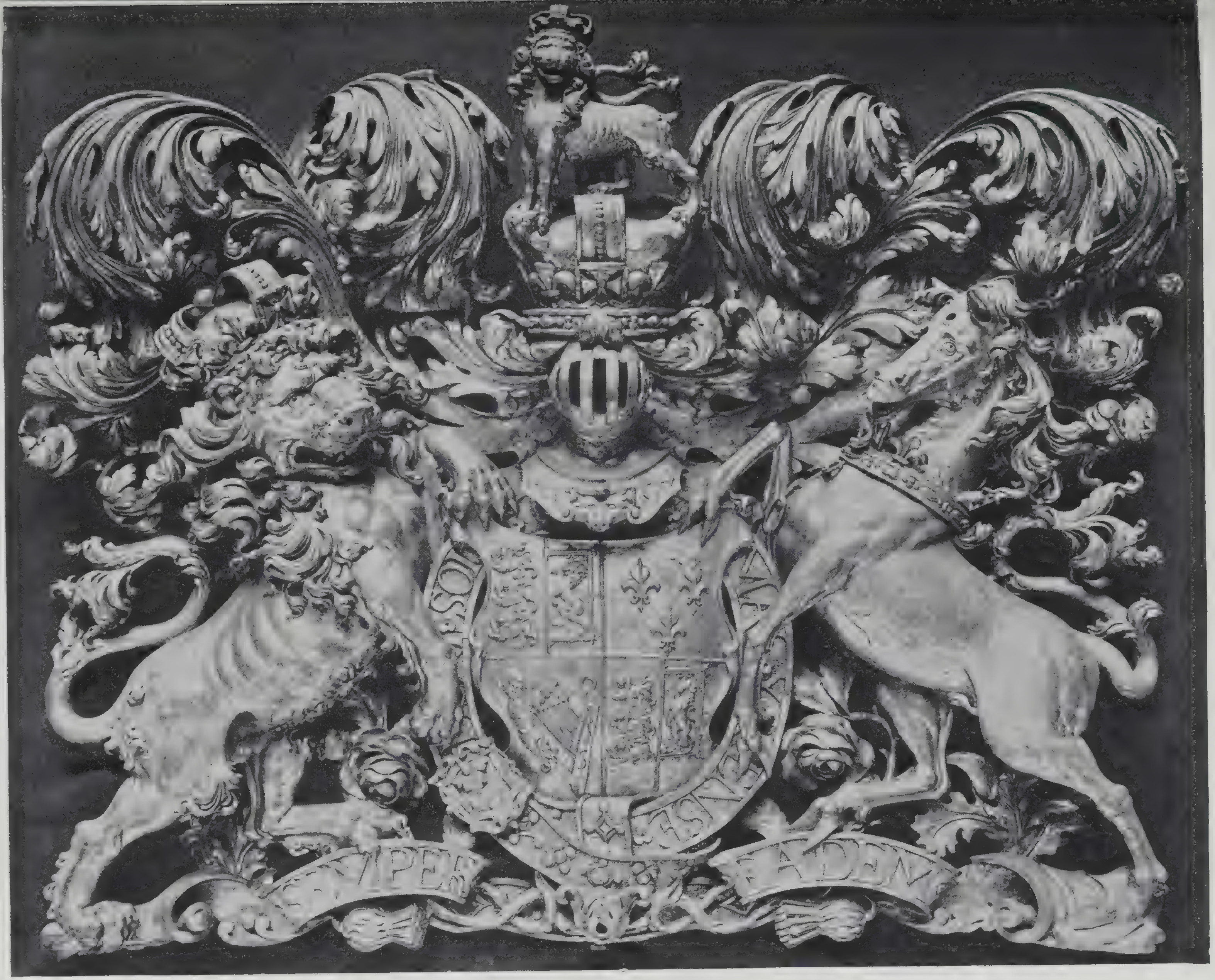
One day last week, browsing in the lib
South Kensington, I was looking throug
French volumes of illustrations of the
German War of 1870. The views were a
geneous collection, photographic reprod
(early "half-tones") of the Royal suite in
pipe" hats and other queer things being mi
with contemporary cartoons and wood-cuts s
the artist's conception of the battle sce
among the reproductions of photographs wer
which served again to illustrate how history
itself. During these latter months we have
painfully familiar with the view of —— afte
bardment, a view showing us shattered wall
torn to shreds, and nothing but havoc and
remaining of what was once a proud archit
fabric. And though on the slightest reflect
should know that there was nothing new in
that buildings had been blown to pieces b
many a time before, still we almost took
granted that this awful ruin was a peculiar
teristic of the present conflict: and it was
because something of the sort was at the
my own mind that I was somewhat astonis
see, in turning the pages of the French volu
same kind of photographic views of wh
Germans did in 1870. So similar, indeed, ar
views that though they show the havoc wro
France forty-five years ago, with different
under them they could easily pass as rec
what the Huns did in Belgium last Augu
September.

UBI



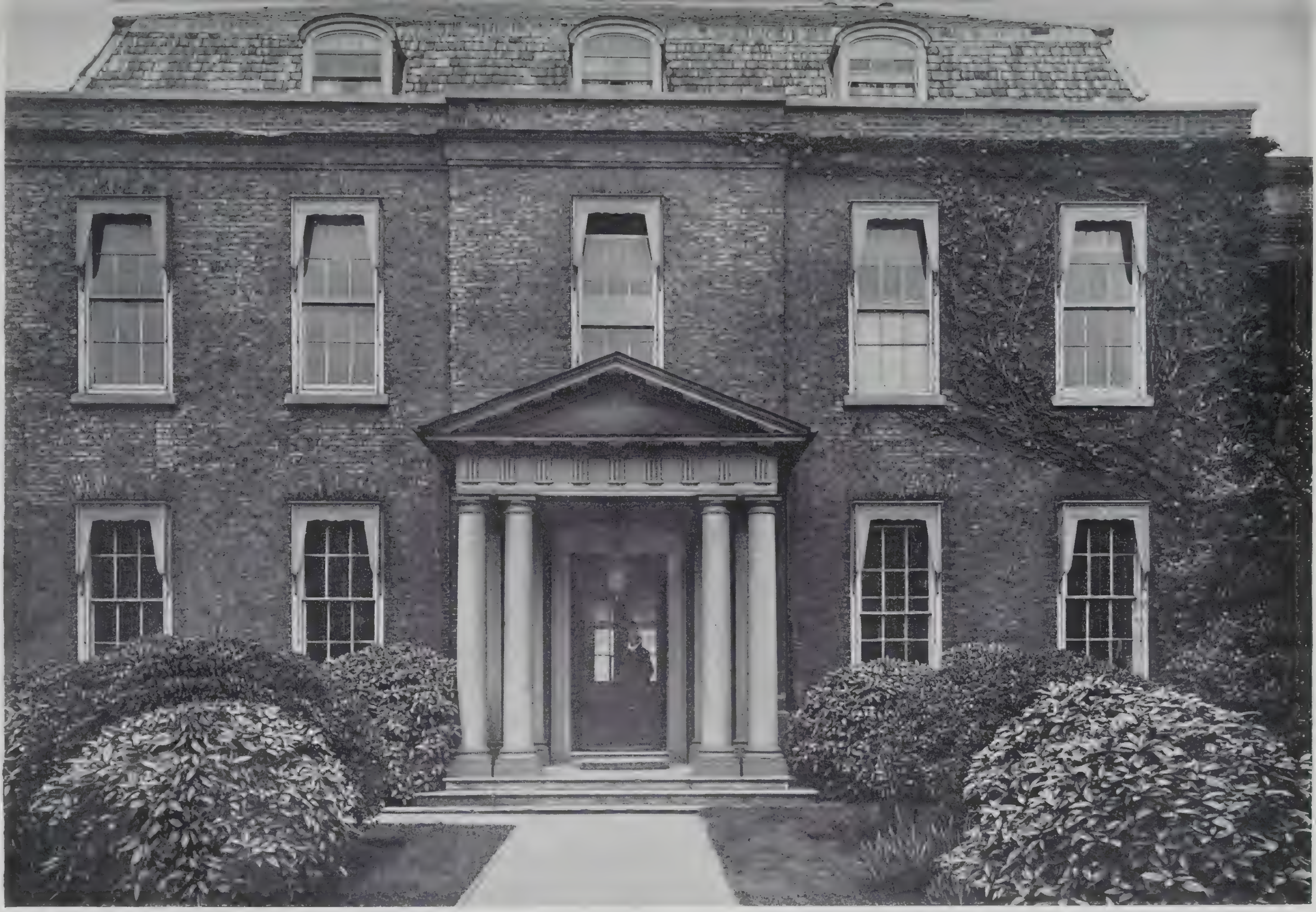
MANCHESTER OLD TOWN HALL. I.—FRONT ELEVATION AND PLAN.

(From a Drawing by Gordon Hemm, reproduced by kind permission of the Libraries Committee of the Manchester Corporation.)



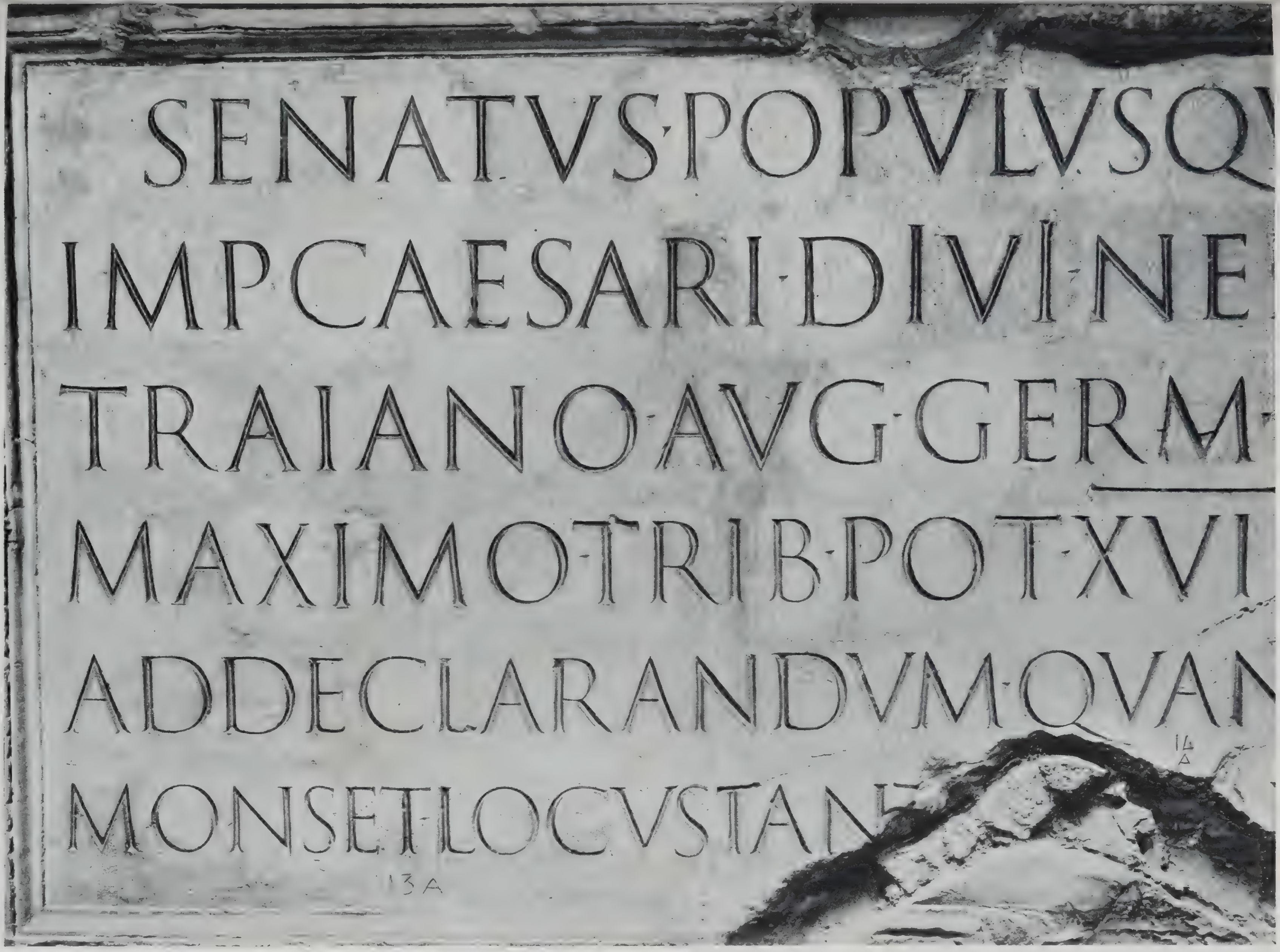
DETAILS OF CRAFTSMANSHIP XVIII.—ROYAL ARMS OF QUEEN ANNE, CARVED IN WALNUT, GILT.

[illegible]

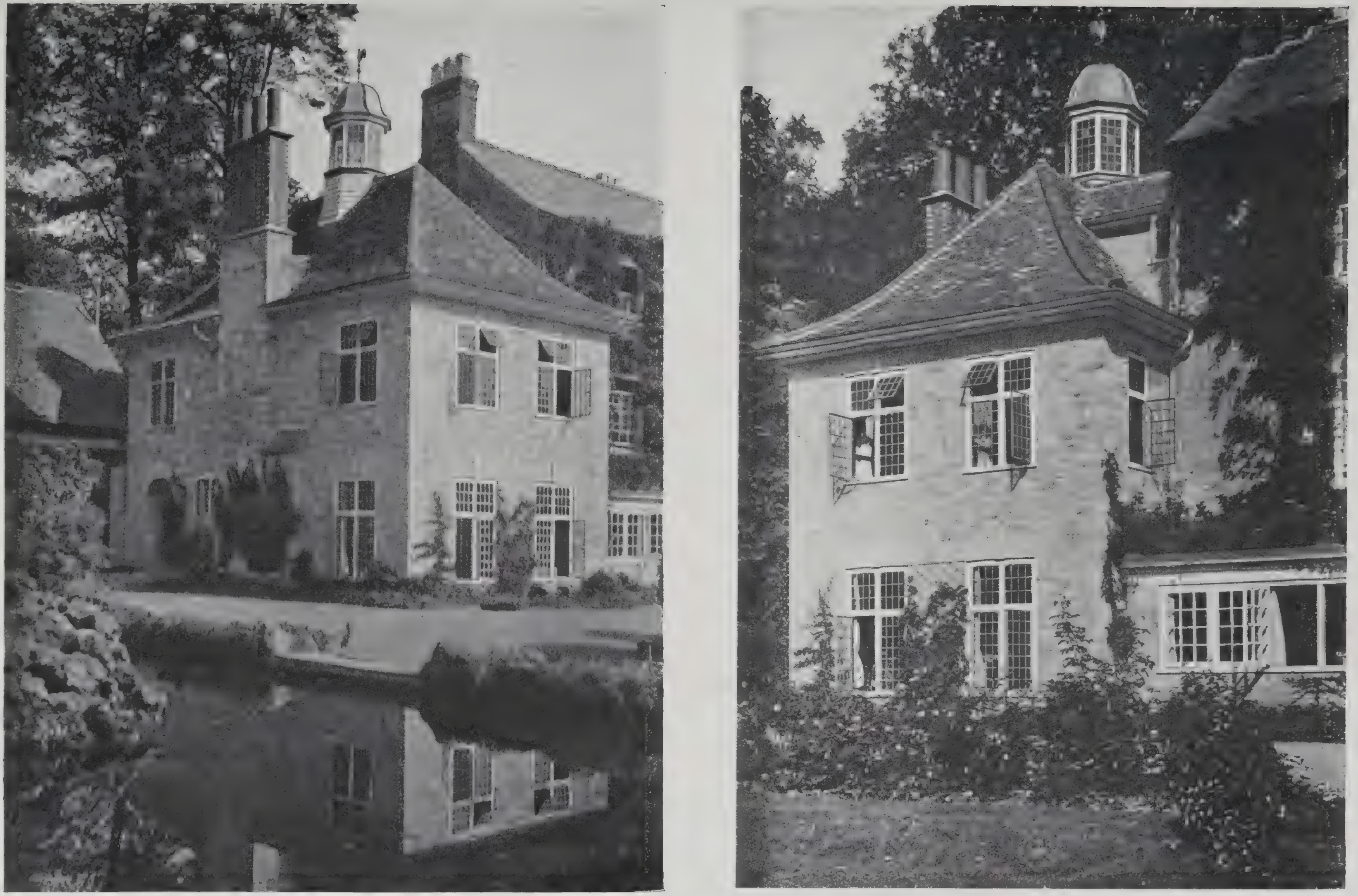


SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XLIII.—COUNCIL HOUSE. BARNES.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

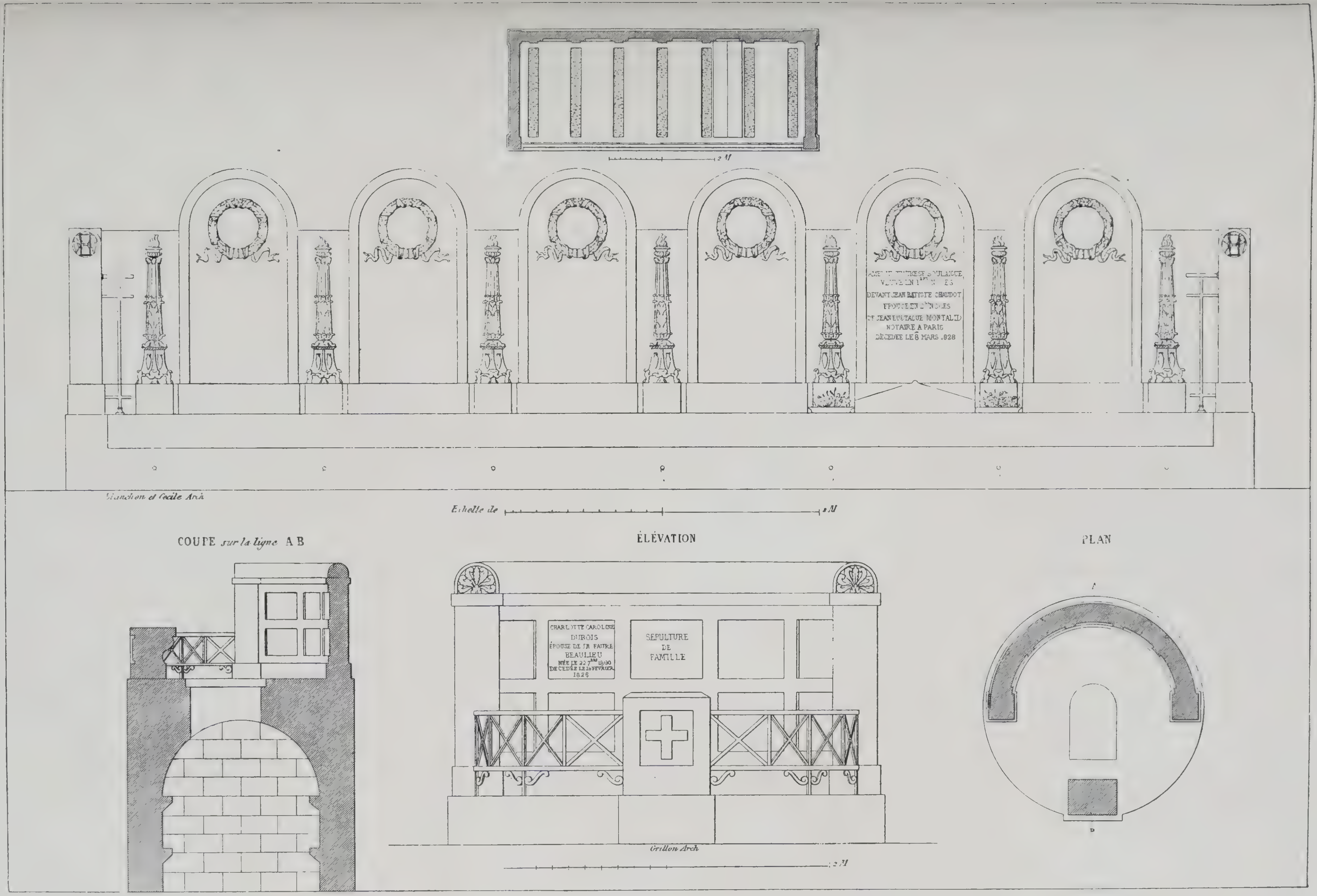


TABLETS AND INSCRIPTIONS. I.—PORTION OF INSCRIPTION FROM CAST OF TRAJAN'S COLUMN, ROME, IN THE VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.



MODERN DOMESTIC ARCHITECTURE (SERIES II.). XIII.—ADDITIONS TO THE LODGE, EYNSHAM, OXON.

CLOUGH WILLIAMS-ELLIS, ARCHITECT.



FRENCH MONUMENTS. XVII.—TOMBS IN THE CEMETERY OF PÈRE LACHAISE, PARIS.

BLANCHON AND CECILE AND GRILLON, ARCHITECTS.

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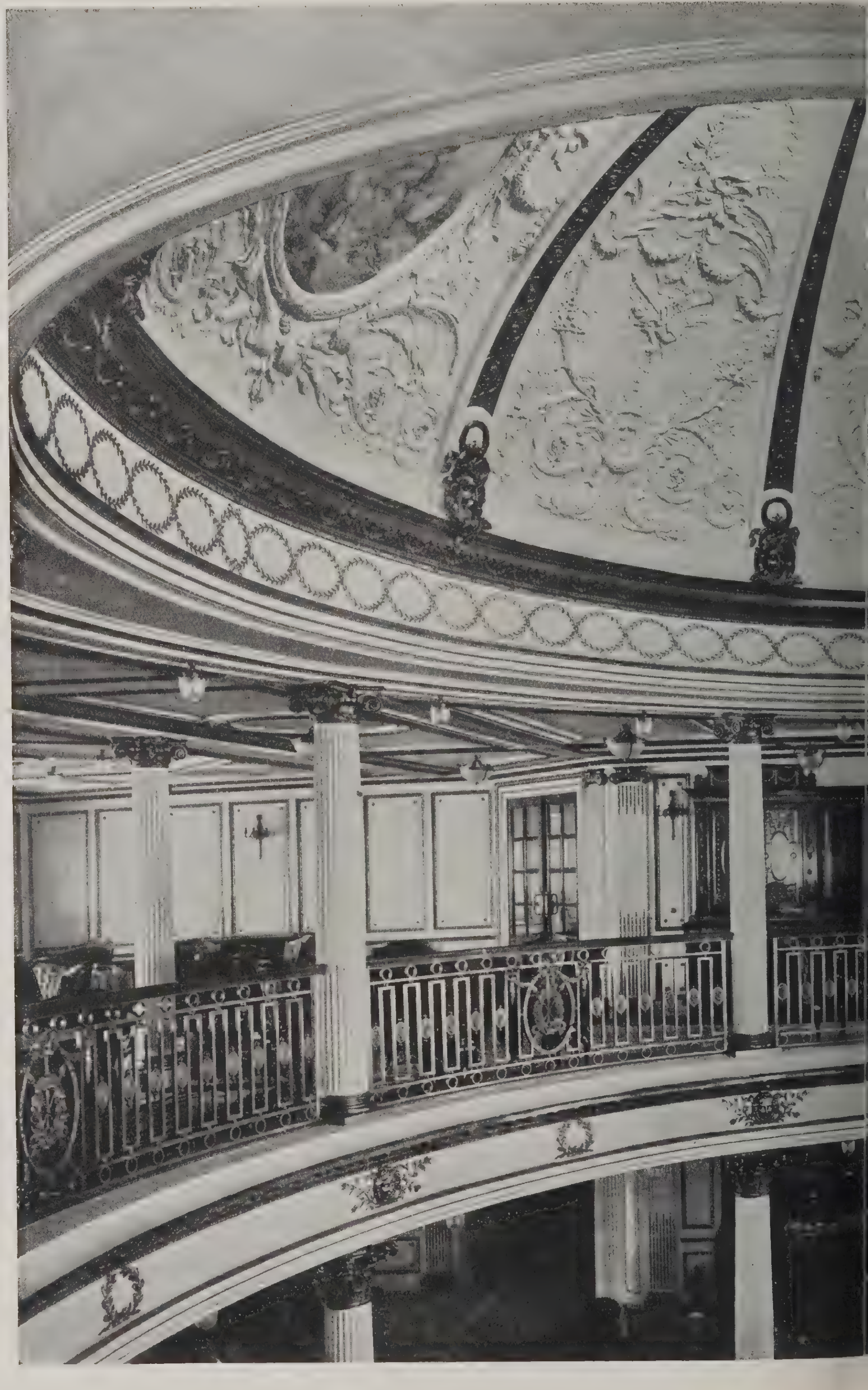

CURRENT ARCHITECTURE (SERIES II.). XIX.—UPP

JAMES MILLE

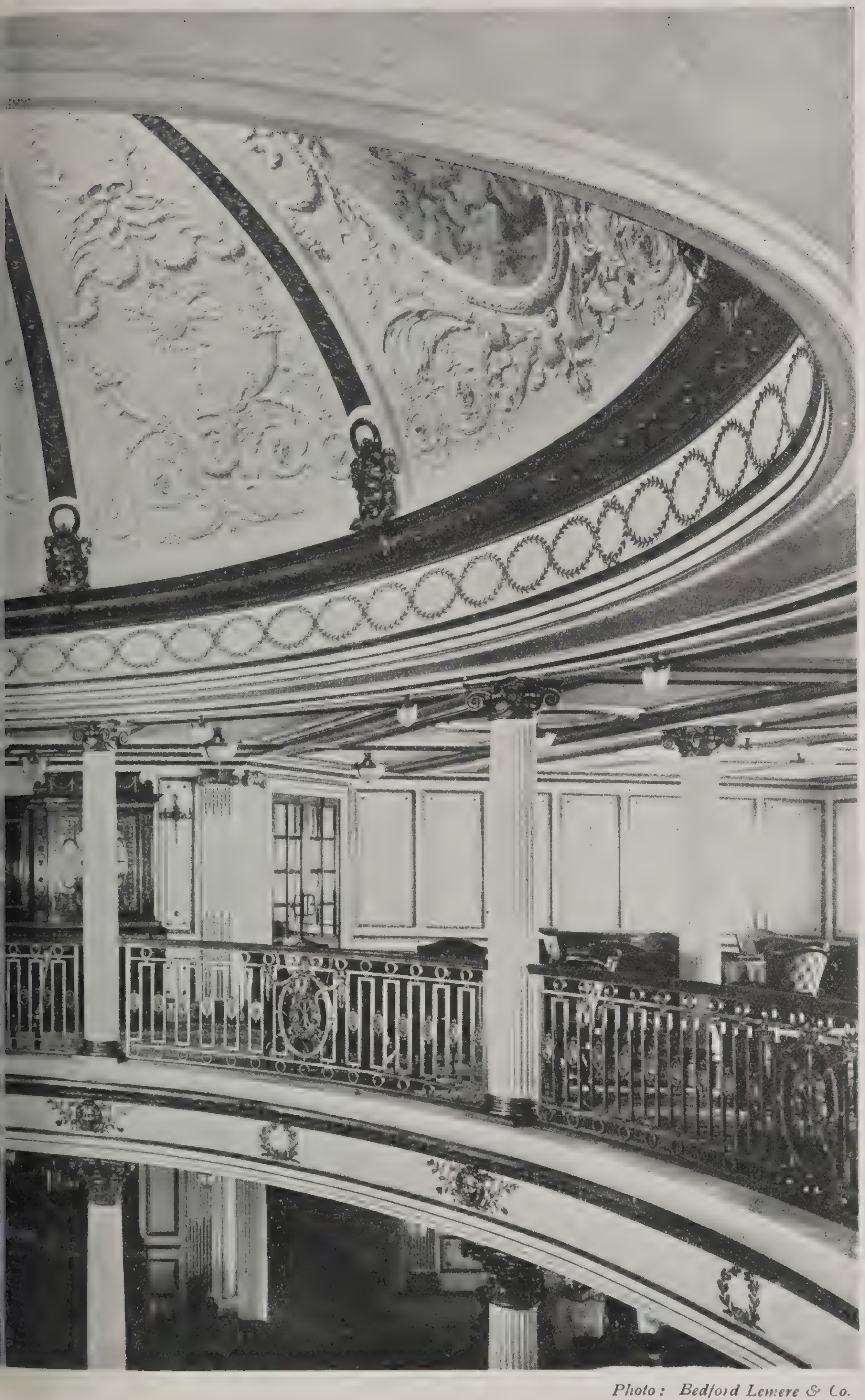

Photo: Bedford Lemere & Co.

-CLASS DINING SALOON ON THE S.S. "LUSITANIA."

.., ARCHITECT.

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THE PLATES.

Old Town Hall, Manchester.

E old Town Hall at Manchester, erected in 1825 from designs by Francis Goodwin, was pulled down three years ago to make way for a new ng for Lloyd's Bank. There was an endeavour e it, but nothing more could be accomplished he preservation of the façade, which is now set Heaton Park, Manchester. The building red to have been saved, for it possessed great ectural merit, and on this account we have ht it to be of interest and value to publish a series asured drawings of it. These will show both the or and interior, and will include a number of showing the mouldings and enrichment on a scale. The mouldings are remarkably good, and ustration of them in the form indicated will h a most useful series of plates for everyday use. e drawings are by Mr. Gordon Hemm. The late in the series shows the front elevation of ilding, with plan. A view of the façade as it was 6, then free from sooty deposit, was published in sue for March 6, 1912.

Royal Arms of Queen Anne.

hitects are often called upon to provide a Royal f-arms with the Lion and Unicorn on either side, e example now illustrated will be of particular in this respect, apart from the general interest ttaches to so spirited a piece of craftsmanship. rms are carved in walnut, gilt, and were probably ned for some provincial town hall or church. riginal, measuring 5 ft. by 4 ft., can be seen in Voodwork Department of the Victoria and Museum, South Kensington.

Council House, Barnes.

s, of course, was originally a private house. The ay is the special feature, though the whole front, out in brown gaults, merits attention on account well-considered design. The roof dormers, of sual type, are noteworthy.

Inscription from Trajan's Column.

jan's Column, said to have been designed by dorus of Damascus in A.D. 111, still stands ally intact in the Forum at Rome. The inscription, of which a fragment is shown as a fine example of Roman lettering, occurs in a large panel over the doorway in the pedestal. It is commonly regarded as the parent and model of the Roman capital letters that have superseded the old Gothic or black-letter characters everywhere except in Germany. As it contains the complete alphabet with the exception of H, W, Y, and Z, U being, of course, represented by V, and J (an invention of the Dutch) by I, it has been long accepted as the touchstone of true form in lettering, a standard from which it is dangerous to deviate, although, of course, allowance must always be made for difference in the medium, incised characters in stone not being properly imitable in every detail with letters made with the reed, pen, or brush; while type-founding introduces further problems that to some extent control form. A certain crudeness in the Trajan inscription is undeniable. Nevertheless, in its proportions, its spacing, and the naturalness of its outlines, this inscription merits careful study.

Additions to The Lodge, Eynsham, Oxon.

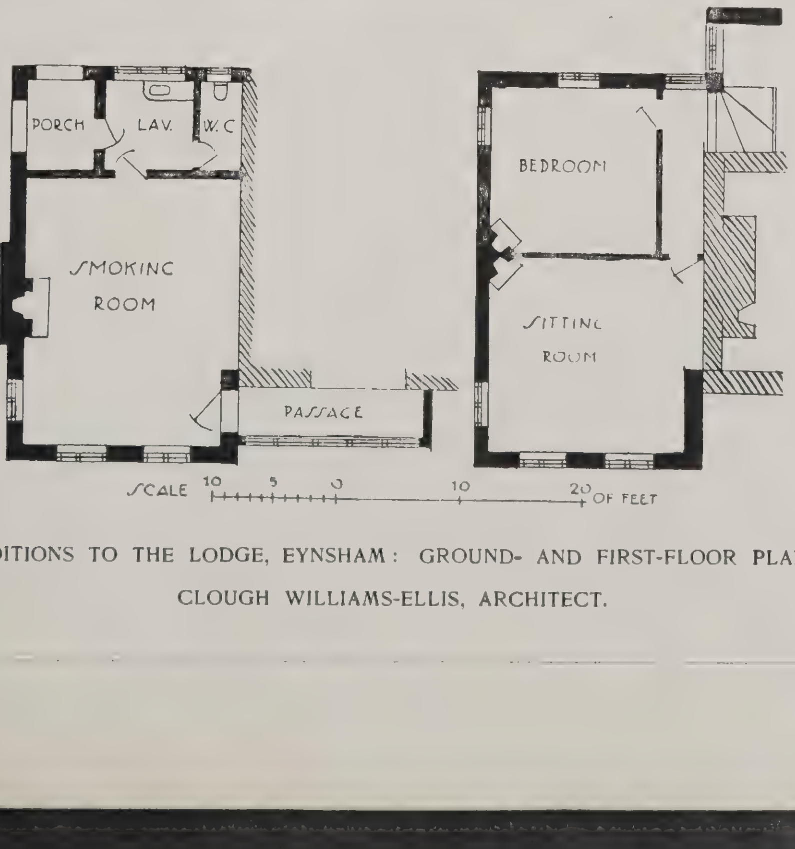
The work executed here from the designs of Mr. Clough Williams-Ellis consisted of additions comprising smoking-room and lavatory accommodation on the ground floor, with a bedroom and sitting-room on the first floor. The walls are built of local stone and the roof is covered with Stonefield slates. The lantern surmounting the roof admits light to the boxroom. The gallery, which is used for music, connects the main stair landing with the new bedrooms. The total cost of the new work was about £900.

Tombs in Père Lachaise.

The upper design on the plate, by Blanchon and Cecile, is of the family tomb of Monthaud, a notary of Paris. It is a copy of the gallery of the Expiatory Chapel that was erected to Louis XVI. and Marie Antoinette, from Fontaine's designs, in the ancient cemetery of the Madeleine. The tomb is made up of six similar headstones joined by walling, all separated from one another by white marble candelabra. The lower design, by Grillon, is a semi-circular wall treatment with sunk panels bearing inscriptions, the whole enclosed at the front by a low railing.

Saloon of the "Lusitania."

This is referred to in the article on the next page.



ADDITIONS TO THE LODGE, EYNSHAM: GROUND- AND FIRST-FLOOR PLANS.

CLOUGH WILLIAMS-ELLIS, ARCHITECT.

THE ARCHITECTURE OF THE "LUSITANIA."

IT was the murderous manner of sinking the "Lusitania," with its appalling loss of life, that staggered us; but a magnificent ship has gone down as well, and on that account the accompanying illustrations of some of the architectural work on the great liner will be studied with melancholy interest. The "Lusitania" was the sister vessel to the "Mauretania," and though in its architectural equipment it was excelled by the latest and greatest of the Cunard liners—the "Aquitania"—its appointments were nevertheless on a most sumptuous scale. The chief feature was the first-class dining saloon, a view of which is shown on the double-page plate in this issue. This extended across the whole width of the ship, and comprised two decks, the centre being marked by a large dome embellished with fibrous plasterwork and decorative panels. The colour scheme was cream with gilt enrichments. Next in interest was the first-class lounge, illustrated on this page. This also extended across the whole width of the ship, and had in the middle a segmental top-light filled with leaded and stained glass. The room was panelled out in mahogany, and at one end was a marble chimneypiece having a large enamel by Mr. Alexander Fisher over the mantel. Another interesting room on the "Lusitania" was the smoking-room, illustrated on the opposite page. This was carried out in the style of Later Renaissance with panelling in walnut extending from floor to ceiling, and elaborate carvings in pearwood over the doorways and elsewhere. Mr. James Miller, A.R.S.A., F.R.I.B.A., of Glasgow, was the architect for the architectural work on the liner. From personal

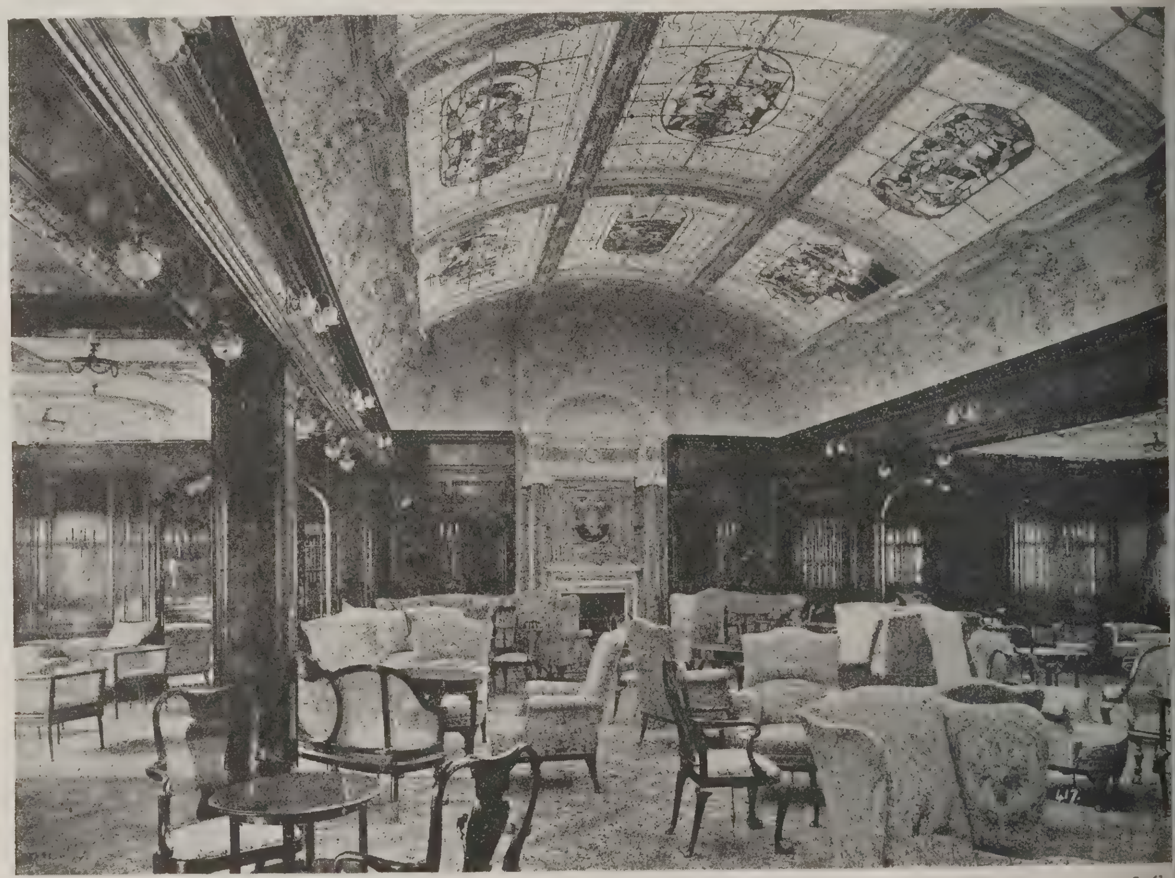


Photo: Bedford Lemere & Co.

S.S. "LUSITANIA": FIRST-CLASS LOUNGE. JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.

knowledge we should like to add our testimo
only to the fine appearance of the various roo
the "Lusitania," but also to the most ex
manner in which every part was carried out.
ship joinery long since won for itself a repu
for excellence, and the decorative work on our
vessels has maintained a similar high standar
necessity for everything being sound and thor
well put together will be realised when it is r
bered what continual vibration there is on b
vessel travelling at a high speed. So that al
the average life of a great liner may be assume
only about fifteen years, all the material and wo
ship used in the construction must be of the ver
quality.

The "Lusitania" and the later vessel
shown what remarkable possibilities there
decoration and even for monumental and pict
architectural effects on board ship, the "
hotels" having indeed been developed to
extent that the long dining-table with swiv
has been superseded by separate tables an
of the same type as those in fashionable res
on land, while in bedrooms the free-standi
stead has taken the place of the bunk, an
on the upper decks have actually been provi
sash windows, in further simulation of the i
the voyager is still on land! And one has
also the swimming-bath, the verandah
the gymnasium, the conservatory.

Whether all this is a development consis
logical may perhaps be questioned, but the
gainsaying the magnificent effect of the gre
on some of the new liners.

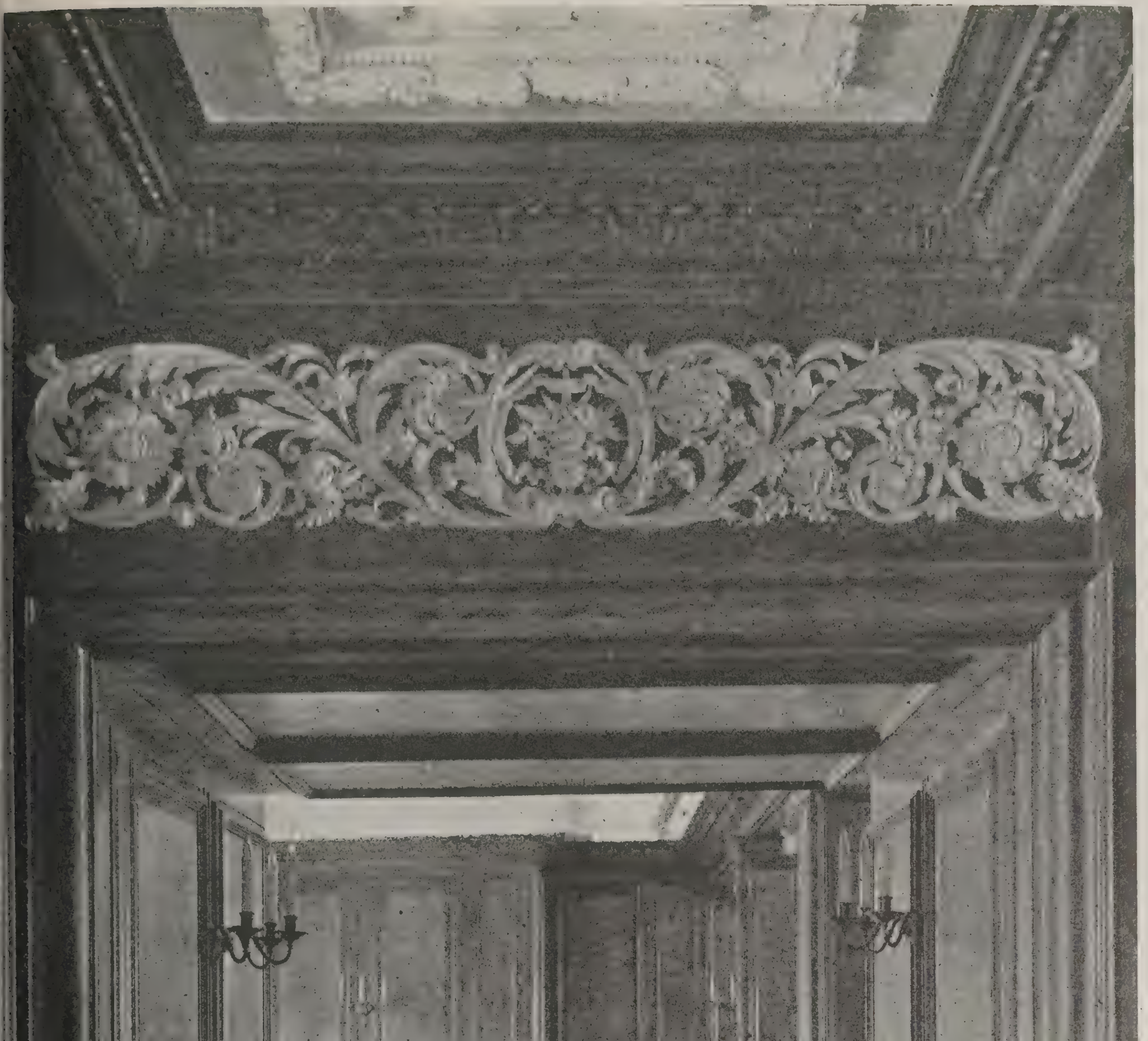


Photo: Bedford Lemere & Co.

THE FIRST-CLASS SMOKING-ROOM ON THE S.S. "LUSITANIA." JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.

THE R.I.B.A. ANNUAL REPORT.

The following are the most interesting items in the report of the Council of the Royal Institute of British Architects for the year 1914-15:

The membership at the end of the year was: Fellows, 857; Associates, 1,713; Hon. Associates, 54; Licentiates, 2,017; total, 4,641.

In consequence of the outbreak of the war it was decided that the consideration of all matters of policy of a controversial nature should be deferred. The question of a new charter and of the formation of a register of architects has therefore remained in abeyance.

More than 1,200 members of the architectural profession are now embodied in various branches of the Forces, and it has been decided to remit the subscriptions of all Members and Licentiates of the Institute who are serving their country in this way.

The prize competitions for the year have been postponed for twelve months, and arrangements have been made to avoid the penalising of candidates for the examinations who have joined the Colours.

A grant of 100 guineas has been made to the National Relief Fund; and the Architects' Volunteer Training Corps, which was formed by the Architectural Association, has received financial and other assistance.

A register of Belgian architects who have come to England as war refugees has been compiled, and some of the privileges of Institute membership have been granted to them during the period of the war.

In conjunction with other artistic and learned societies, the Royal Institute submitted a protest to the American Government against the destruction of buildings and monuments by the Germans in Belgium and France.

The financial difficulties of the Architectural Association, arising from the patriotic action of so many of its members and students, have been sympathetically considered by the Council, who have shown their appreciation of the value of the educational work of the Association by making a special grant of £250 in addition to the usual annual grant of £100, and by making a further grant of £250 from the balance of the Anderson-Webb Fund.

The question of the desirability of drawing up special "war clauses" for use in connection with the R.I.B.A. Form of Contract was very carefully considered by the Council, who had the benefit of the advice of the Practice Committee, and it was finally decided that no official action in this direction was advisable. The course of events in the building trade since the early weeks of the war appears to indicate that this decision was a wise one.

A few days after the beginning of the war the President summoned a meeting to consider what action should be taken in view of the crisis, and as a result of this meeting a committee, known as the Architects' War Committee, was formed, which had the advantage of the services of members of the Architects' Benevolent Society, the Architectural Association, and the Society of Architects, and of architects not connected with any of the architectural societies.

With the aid of two subordinate committees, known as the Selection Committee and the Professional Employment Committee, a great deal of valuable work has been done. Assistance has been offered and given to the War Office and other Government Departments, a substantial contribution to the National Relief Fund has been raised by subscriptions from members of the profession, and a War Relief Fund for Architects has been instituted, which has already been instrumental in relieving distress arising from unemployment in the profession.

The interests of the profession have been safeguarded by the assiduous personal efforts of the President (Mr. Ernest Newton), who has been in constant communication with various departments of the Government since the outbreak of the war.

The scheme for the establishment of a Legal Defence Union for Architects, which was referred to in the last annual report, was submitted to the members at a special general meeting, but in the absence of a quorum no progress could be made with the consideration of the scheme drafted by the Board of Professional Defence.

The Council have taken the necessary action in connection with all the complaints as to the professional conduct of members that have been laid before them. Several members have been dealt with under the provisions of by-laws 24 and 25 for taking part in competitions which had been vetoed by the Council. It has been decided to publish an advertisement in selected newspapers from time to time warning the public against professional advertising by architects.

The discussion of the revised schedule of charges has been completed, and the new scale will be brought into operation by the Council in due course.

The Committee on Official Architecture has completed its consideration of the matters referred to it, and has presented its final report to the Council. This report, however, is of such a controversial nature that the present is not a suitable time for its discussion, and the Council have accordingly decided to defer its consideration for six months.

In spite of the adverse effects of the war, the finances of the Royal Institute are in a satisfactory state. The remission of the subscriptions of those members who are serving with the Forces and the reduction in the examination fees paid by students are the principal causes which have led the Finance and House Committee to anticipate a small deficit on the year 1915. When normal conditions again exist it is to be expected that there will be a substantial surplus of income over expenditure.

The liquidation of the Architectural Union Company has now been completed, and the Company's lease has been transferred to the Royal Institute.

Changes in the Examinations.

Candidates for the Final Examination are now required to deposit with the Moderator at the end of the first day of the Examination in Design a tracing showing the general lines of his design. An additional three hours on the third day of the Examination have been allotted to this subject. With the approval of the Council, the Preliminary Examination will be discontinued after June, with the exception of the subjects of freehand drawing and geometrical drawing or perspective; but every candidate for registration as probationer must satisfy the Board that he has attained a sufficient standard of general education. In connection therewith the Board have had under consideration a proposal from H.M. Board of Education with reference to a scheme for improving the existing arrangements for the examinations in secondary schools in England. After consideration of the scheme, the Board have recommended the Council to accept a pass in the first examination which the Board of Educati
pose to institute as satisfactory evid
the candidates having attained a su
standard of general education.

The report of the Board of Archit
Education states that during the y
problems in design were receiv
adjudicated on, and of these 32
approved, being a decrease of 55
respectively on the previous yea
result being doubtless due to the w

Questions of Practice.

The report of the Practice St
Committee states that the Concret
tite having submitted to the Co
draft form for the standardisation
measurement of reinforced concret
was referred to the Committee, an
careful consideration by a sub-com
was approved, with the rider
reinforced concrete should be sh
the architect's drawings, and the
ties for it taken off in the usual way

A large number of enquiries
upon points of professional practi
kindred matters have been receiv
dealt with. Of these nearly one-ha
concerned with difficulties arising
the existing conditions of contract
schedule of charges, and it may fa
anticipated that a large number
difficulties which arise in the use
these documents will be removed
their respective revisions have
adopted. Most of the enquiries re
being necessarily of a confi
character, cannot be referred to in
In regard to questions as to profe
charges, the growing number o
which have been submitted to the
mittee by Members and Licentiate
all parts of the country asking for
as to the reasonableness of profe
charges, and often accompanied
considerable mass of documents an
ings, involving the expenditure of
amount of time and labour for eve
cursory perusal and examinatio
compelled the Committee to dec
future to give opinions on such n
especially when submitted *ex par*
likely to lead to legal proceedings,
some matter of principle is involv
accordance with their established p
the Committee continue to be car
express no opinion on matters *sub*
or on *ex-parte* statements, express
opinion on which might be detrime
their brother professionals.

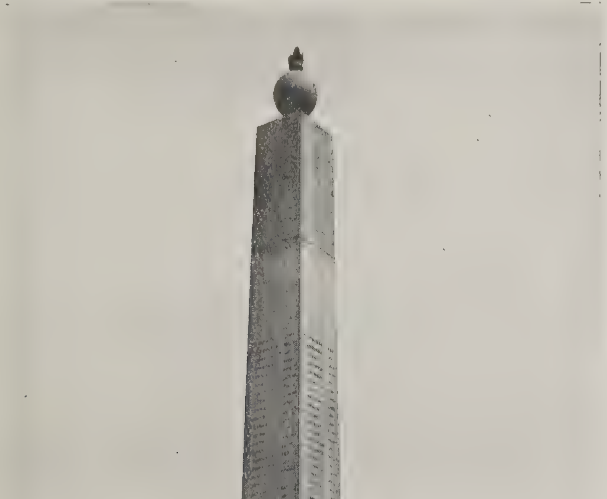
DUBLIN COLISEUM.

This new building, with accomm
for nearly 3,000 people, stands in a
position in Henry Street, adjoini
G.P.O. It was designed by Mr.
Crewe, in collaboration with Mr.
Bergin, of Dublin, and built by
H. and J. Martin, Dublin. The
entrance is from Henry Street, wh
façade has been built in white
Carrara ware. There are 400 stall
arranged in twelve rows, of uph
tip-up armchairs. The floor is
with rich pile carpet in blue, and
holstery and draperies in old ro
harmonise with the general colour
in cream and gold. The circ
accommodation and seats for 600 pe
fourteen rows of armchairs. The
eight boxes, and the pit and galler
seating accommodation for 800
The stage is 40 ft. deep and 80 ft
and special arrangements have been
by which a portion of the stage floo
cealing a tank) can be easily remo
water shows.

SOLDIERS' MEMORIAL.

ıe "Architectural Review" for May
s a very finely illustrated article on
rn British Memorials of War," the
surveyed extending from the begin-
f the nineteenth century down to the
t day. The several monuments to
and Wellington are dealt with very
tely, as well as the Crimea and
nemorials, and as examples of cur-
ork some of the best of the South
n memorials are shown.

le the column and the arch have
sed again and again, we think it is
regretted that the obelisk has not
ore often selected as the form for a
morative monument. The Welling-
belisk in Phœnix Park, Dublin,
l from the designs of Sir Robert
, is a fine example in our own
y of what can be done, and the
nwalla Memorial in the grounds of
a Hospital is another example of the same type, but on a much smaller scale. From the illustration of the latter here given it will be seen to be of a type admirably suited to the commemoration of individual regiments or commanders, and when the present War is over we would far rather see memorials of this kind set up than the customary monuments in which there is more consideration given to the interest of the sculpture than to the general architectural design. This Chilianwalla Memorial is a simple obelisk of granite surmounted by a ball and crown, gilt. It is to the memory of 259 officers, non-commissioned officers, and privates of the 24th Regiment who fell on January 13, 1849, in the battle of Chilianwalla, one of the engagements in the second Sikh War. It was erected by surviving comrades in 1853. The names of the fallen are cut on each of the four sides, and thus placed the lettering has definite decorative value. Originally, we believe, a cannon stood at each corner of the base.



CHILIANWALLA MEMORIAL IN THE GROUNDS OF CHELSEA HOSPITAL.

RELIEF WORK FOR ARCHITECTS AFFECTED BY THE WAR.

An interesting statement on what has been done by the Architects' War Committee towards affording relief to architects affected by the war was made at the recent annual general meeting of the Institute by Mr. H. V. Lanchester, F.R.I.B.A., and is reported in the "R.I.B.A. Journal." Mr Lanchester said that when, as a member of the Professional Employment Sub-Committee, he made enquiries, he found that there was great need of a form of employment suited to architects which would produce some useful work that would be of recognised value after the war. The Committee came to the conclusion that one of the best forms of employment was to help to replace the collection of Civic Survey drawings which was lost on its way to India in the "Clan Grant" owing to the sinking of the vesel by the "Emden." The work interested the Committee so much that they realised the possibilities of civic survey work throughout the country as a valuable preparation—and one which had been maintained by eminent authorities as an indispensable preparation—for town-planning schemes. It was realised that there was an opportunity here for architects to engage in this class of work as a preparation for the town planning of the future. The Committee, on their own account, and out of their own funds, began to employ those who were in need. But it soon became apparent that the work was beyond the scope of any funds which they could hope to have at their disposal. They therefore approached the Government—and members would appreciate the slowness of the operation of moving a Government—and after many discussions and interviews the Government was persuaded to make a grant, though only a small one. It was a grant for work by professional men in difficulties, and for this work £2 a week was offered, just to tide them over the present difficult period. Two conditions the Government attached to its offer—namely, that the work should be in the hands of competent directors, and that the approval of the local authorities concerned should be obtained. The last condition was rather a difficult one, because in some places a number of different local authorities had to be approached and convinced. But they had seen the Secretary of the Government Committee, and he encouraged them to hope that if they could get the approbation of some of the large central societies representative of local authorities, such as for Greater London, for Birmingham and district, and other districts, that would satisfy the Government requirements in this regard. In that way they would be able to cover a large area at one stroke. Through Mr. Aldridge, who was holding conferences of these societies, the Committee had obtained general approval from that representing Greater London, so that as soon as they could get their organisation together they would be able to ask the Government to help them by making the grant above alluded to. Though only a small grant, they hoped it would be of assistance to those who were really in straits. He thought this was satisfactory and that the Committee had set on foot a valuable work. But they need not stop there; they might go on and try to extend the scope of work of this class. But so far they had the recognition of the Government that architects were entitled to be considered, especially owing to the necessity which the Government had been under of stopping building works.

SPECIAL LEGAL REPORTS.

Deductions from Payment Under Certificate.

Powdrill v. Tipton Urban District Council.

May 11. Official Referees' Court. Before Mr. Pollock.

This action raised a question as to whether the defendant Council had a right to make a deduction from the contractors' claim under engineers' certificates for work done in connection with the construction of sewerage works at Tipton, on account of payments made by the Council to the Birmingham Canal Navigation Co. for drawing off the water from their canal while sewer pipes were being carried across it.

Mr. A. A. Hudson, K.C., and Mr. Tibbs appeared for the plaintiff, and Mr. Disturnal, K.C., and Mr. Herbert for the defendants.

The claim was for £350, which plaintiff alleged had been wrongfully deducted by the Council from the amount for which the engineer had given his certificates, the original contract price being £5,485. The plaintiff, Mr. A. J. Powdrill, a contractor of Luton, was the assignee of the original contract with Messrs. Thompson and Farley.

Defendants set up that they were entitled to make the deduction they did on account of payments to the Canal Company for drawing off the water in order to lay the pipes across the canal. They alleged that the withdrawal of the water the second time was due to the defective work of the contractor, but plaintiff said it was owing to deviation from the original plans and to instructions given by the Council's engineer and the engineer of the Canal Company.

The Official Referee found that the contractor had no notice of the agreement arrived at between the Council and the Canal Company as to the amount to be paid for the drawing off of the water. Plaintiff had not been paid the full amount he was entitled to, neither did he receive the cheque for £340 from the Council in accord and satisfaction. He found that the plaintiff was entitled to £206 on the original claim and £225 on the amended claim, and he gave judgment for plaintiff for £431, with costs.

A stay was granted with a view to appeal.

A Cellar Flap Question.

May 6. Tower Bridge Police Court. Before Mr. Gill.

Mr. Dicksee, district surveyor, had issued summonses against Mr. W. Pringle, builder, of Grove Works, Lessada Street, Bow, for having failed to serve notice of works which he carried out at premises in Newington Causeway, and for having failed to comply with notice of irregularity served by the district surveyor.

Notices served on the defendant made complaint of "a construction under the public way" "formed of materials other than incombustible" (soft wood, 1½ in. thick), and stated that to meet with the approval of the district surveyor "the construction must be constructed of ironplate or hard wood not less than 1¾ in. finished thickness."

Mr. Gill, in giving his decision, said it had been contended that the cellar flap in question was under the public way, but it appeared to him that it was on the surface of it and not within the section. As to Section 209 of the London Building Act, 1897, which had also been relied upon by the complainant, he was of opinion that the renewal of the cellar flap was "a necessary repair not affecting the construction of any external or party wall," and was therefore exempt from the provisions of the Act relating to new buildings.

On the application of Mr. Ricketts, for the defendant, the magistrate granted five guineas costs against the district surveyor.

"Back-to-Back Houses."

In the Matter of Sir Edward White and the Mayor, etc., of St. Marylebone.

May 12. King's Bench Division. Before the Lord Chief Justice and Justices Avory and Low.

This matter came before the Court in the form of a special case stated by the Local Government Board for the decision by the Court of certain legal questions arising out of proceedings between the executors of the late Sir Edward White and the Marylebone Corporation under the Housing and Town Planning Act of 1909. From the special case it appeared that Sir Edward White received from Viscount Portman the lease of premises at Montague Mews South, and these had been rebuilt into a block of motor garages with rooms above. The block was divided by four transverse walls into five separate premises. The ground floor consisted of five pairs of motor garages, and above were ten dwellings of three rooms, each with bathroom and w.c. Each of the back rooms in each house had a window which opened into a ventilating shaft, and each set of rooms had been let to the chauffeurs in charge of the motor-cars in the garages. On December 31, 1913, the Marylebone Corporation issued closing orders with regard to the dwellings, on the ground that they were "back-to-back" houses intended to be used for the dwellings of the working classes and prohibited by the Act in question. Notice of appeal was given to the Local Government Board. A public inquiry was held, but the Board gave no decision, questions of law having arisen on which they asked for assistance from the Court and on which there had not been a statutory definition. The questions which the Board asked the Court to answer were:

1. Are the said houses "back-to-back" within the meaning of the Act, having regard to their construction?
2. Are they intended for use and occupation of working classes?

Mr. Greer, K.C., argued the case for the executors of Sir Edward White, and Mr. Macmorran, K.C., represented the Marylebone Council.

The Lord Chief Justice, in giving judgment, said the Act prohibited the erection of "back-to-back" houses to be used as dwellings for the working classes, and what Parliament had in mind was to ensure that there should be proper ventilation in houses occupied by the working classes; the means they adopted for this purpose was to say that houses should not be built "back-to-back." In the present case, there seemed that as to two-thirds of each house, it was "back-to-back," while as to one-third of each house, where the ventilation shaft separated the dwellings they were not "back-to-back." It was therefore open to the Local Government Board to find on the fact that these dwellings were "back-to-back" houses within the meaning of the Act. With regard to the second question, the Court had no hesitation in saying that a chauffeur was a member of the working classes.

Mr. Justice Avory, in concurring, said the existence of such an air shaft ventilator did not prevent the houses being regarded as "back-to-back" houses.

Mr. Justice Low agreed.

TREES IN TOWN STRE

Anxious to avoid further contro
connection with tree-planting ar
ping, the Kensington Council
Professor J. B. Farmer, M.A., of th
rial College of Science and Techno
prepare a special report on tree-p
in London.

The report states that the tree
suitable for planting in the streets
Plane, the Tree of Heaven (Ai
glandulosa), the Jersey Elm, and th
bardy Poplar. Other varieties wo
ing are the Lime (Tilia euchlor
single-leaved Ash, Bolle's Poplar,
pink hybrid Chestnut. The trees
be planted, as far as possible, at eq
tances from one another. A suita
tance apart is 50-60 ft., but narro
midal trees might be a little
together. The trees in any one s
road should be of one species only,
far as possible they should be ke
in size, and be shaped on a
scheme. The shape may be pyran
open, the latter being suitable fo
that are wide, and especially wh
houses are separated from the pa
by forecourts.

The improved condition of the
atmosphere within recent years (s
report) renders the experiment of
the kinds of trees to be planted a
one. Whilst it is recognised t
plane is certain to continue to be t
thriving tree, there is perhaps so
to be said in favour of avoiding c
monotony by the introduction o
kinds of trees into the streets. Th
stands pruning and even the hard
ting back better than almost an
tree, except perhaps the lime. It
however, attention to prevent its n
vigorous development rendering it
able for the area at its disposal.
labours under the suspicion of
injury to the respiratory organs of
people, owing to the hairs which a
by the leaves as they reach matur
still more to the stiff bristles tha
break off the ripe fruits and so get
into the air. Professor Farmer, h
does not think the case against the
this account, has been really prov
mentions that it is a fact that i
foreign towns, particularly in G
it has fallen into disfavour.

As a general rule the streets most
for trees are those which run no
south. The trees on both sides
road receive their due share of s
and the houses on neither side are
deprived of their light. In streets
east and west, the trees are apt to
a nuisance to the people who live
north-facing side of the road.

SOCIETIES AND INSTITU

Bristol Society of Architect

At the annual general meeting
Bristol Society of Architects, the
of council and officers for the
1915-16 resulted as follows: P
Mr. Graham C. Awdry, F.R.I.B.
presidents, Messrs. G. H.
F.R.I.B.A., and W. S.
F.R.I.B.A.; council, C. F. W.
F.R.I.B.A., Mowbray A.
F.R.I.B.A., G. C. Lawrence, A.R
J. Foster Wood, F.R.I.B.A., B. W
Licentiate R.I.B.A., R. C.
F.R.I.B.A.: associate members
cil, E. G. Rodway, A.R.I.B.A.,
W. S. Wills; hon. secretary, A.
terill, A.R.I.B.A.

The annual report stated that in

-opean crisis an excellent attend-
the meetings and a continued in-
n the part of members in the pro-
s of the society had been main-
The council also noted with great
ition that at least thirty-four archi-
siding within the province of the
Society of Architects, nine of whom
mbers of the society, are serving
s Majesty's forces, and in addition
nembers, including the president,
voting a great deal of time in
ways to the interests of the
. The society now numbers
ve Fellows, twenty-three Asso-
and thirteen Students—a total of
-one. At the request of the sub-
tee of the Architects' War Com-
the council compiled a list of archi-
10 are willing to undertake Govern-
ork in the planning and super-
f buildings and temporary erections
other kinds of professional service
the war, and also those willing to
er and temporarily carry on the
onal work of architects who have
for service with the troops.
ig the evening a discussion took
on various subjects, and Mr. Wil-
Haile, the winner of the first prize
ecent students' measured drawings
tion, was presented with a book
the value of £3 3s., and his draw-
hich consisted of a reconstruction
eighteenth century reredos at
Church (City), a composition de-
the Commercial Rooms, Corn
and of Park Hill House, were on

COMPETITIONS.

modelling Central Bradford.

Reginald Blomfield, R.A., the
appointed by the Bradford Cor-
1 to consider the competitive design
replanning of streets in the central
the city—the area lying between
Square and Peel Place and
l by Market Street, Leeds Road,
ll Ings—having made his awards,
essful plans have been hung in the
gallery of the Cartwright Memorial
here they will be on exhibition until
, to give the public the opportunity
ecting them. The area to be re-
d comprises between ten and eleven
In all fifty-four sets of designs
ubmitted. The awards are as
1 (£500), Messrs. Gibson, Skip-
nd Gordon, 5, Old Bond Street,
(design No. 25); 2 (£300), Messrs.
Abercrombie and Lionel B.
, the School of Architecture,
Buildings, Liverpool (No. 14);
), Mr. Reginald Dann, Hunting
Crawley, Sussex, and Mr. John H.
an, 23, Robinson Street, Hastings
).

OF COMPETITIONS OPEN

31.—Laying-Out Grounds of
sity of Western Australia.—
are invited for the laying-out of
unds at Crawley, Perth, Western
a. Premiums, first, 100 guineas;
25 guineas. Drawings must
ne Registrar, University of Perth,
er than May 31. Documents
to the competition may be seen at
ices of the Agent-General for
1 Australia, Savoy House, Strand,
For particulars see our issue of
17, p. xiv.

7. — Municipal Buildings,
.—Designs are invited by Stepney
1 Council for new Municipal buildings. Particulars from Mr. G. W. Clarke, Town Clerk, 15, Great Alie Street, Whitechapel, E.

No Date.—Small Hospital, Whitehaven.—Designs are invited by Galemire Joint Hospital Committee for a small hospital. Apply Mr. E. B. Croasdell, Union Hall, Whitehaven.

No Date. — Cottages, Cheshire. — Designs for cottages on the Bromborough Estate, Cheshire, are invited by Messrs. Lever Brothers. Particulars of the nine premiums offered were given in our issue of March 17. p. xiv.

NEWS ITEMS.

Waterproofing Sanatoria.

It is of vital importance that sanatoria should be built absolutely free from damp. Tuberculosis is a disease in which dryness and warmth are necessary. Many architects for sanatorium work specify that the buildings shall be treated with waterproofed concrete and waterproofed in all cement renderings. The recently erected Knightwick Sanatorium was treated with the powder Pudlo.

A War Memorial.

A mural tablet has been placed in Scofton Church, Notts, to the memory of the late Major Hubert F. F. B. Foljambe, King's Royal Rifles, who was killed in action on the heights of the Aisne in September last. It is in the form of a simple Latin cross, with the sword, belt, and regimental crest finely carved in relief, and is mounted upon a background of polished grey marble. The monument was sculptured by Messrs. G. Maile and Son, London.

Madrid Palace of Justice Destroyed.

As the result of the fire at the Law Courts at Madrid recently, Spain has to deplore not only the loss of historic buildings but the destruction of important documents pertaining to both civil and criminal law suits. Many valuable pictures by famous artists were destroyed. The Palace of Justice was contructed in 1758 at a cost of £840,000 by Ferdinand VI. and his consort Barbara of Braganza, who intended it for a convent. The church, which contains valuable jewels and relics, and where King Ferdinand and his wife are buried, was saved by the exertions of the fire brigade.

The "Official Architect" Question.

The special Architectural Committee of the Manchester City Council, at its second meeting, on May 12, decided to invite the Manchester Society of Architects to send a deputation to the committee to lay its views on architectural matters before the committee. The committee was appointed to enquire into the advantage or otherwise of inviting the services of firms of architects in private practice, thereby enabling the City Architect to devote himself to advisory and supervision work in connection with plans for buildings. It is expected that in due course the various departments of the Corporation will be invited to appear before the committee.

"Pro Patria."

Dr. T. Gregory Foster, Provost of University College, London, writes: "May I ask the hospitality of your columns to bring before the past and present students of University College, London, the following matter: A new edition of the University College, London, 'Pro Patria,' is in course of preparation and will be issued shortly. Past and present students, or their relatives and friends on their behalf, are invited to send full particulars of the capacity in which they are serving the country at the present time. In the case of the Army, rank and regiment should be given; in the case of the Navy, rank and ship. These particulars should be addressed to the Publications Secretary, University College, London."

Hampstead Garden Suburb.

To commemorate the eighth birthday of the Hampstead Garden Suburb, a party of shareholders and others visited the suburb last week and were entertained to tea at the Club House. Amongst those present were the Viscountess Helmsley. Lord Islington, Admiral Sir H. Bowden-Smith, and Mr. Travers Buxton. It was stated that since the end of 1907 the cost value of the property of the co-partnership societies which had undertaken most of the building in the suburb had grown from £4,000 to £663,000, and in the same time their capital had increased from £10,000 to £330,000. The total number of houses owned by the co-partnership societies at the Hampstead Suburb was over 1,200, and with a rent roll of £43,000 the arrears were less than 1 per cent. Practically all the houses rented below £50 per annum were let to investors in the owning societies.

Hoop Iron from Belgium.

According to a writer in the "Sheffield Daily Telegraph," it is a fact that hoop iron made in Belgium has been recently delivered in Sheffield. The Belgian firm was permitted by the Germans to export the iron through Dutch agents, and the British Government granted a licence for its importation. It is understood that an arrangement exists in such cases under the terms of which cash for the goods is to remain at interest in London until the end of the war, to the credit of Dutch agents, who make their own financial agreement with the Belgian makers. This hoop iron is delivered conveniently wound upon a kind of bobbin and punched every few inches to afford greater facility for users. Since the war (the Sheffield writer continues) an attempt has been made by English firms to deliver hoop iron in reels, but so far it has not been very successful, whilst as a rule the iron is delivered twisted up into shapeless bundles, and, of course, unpunched.

New Nave of. St. Aidan's, Bamber Bridge.

Extensions to St. Aidan's Church, Bamber Bridge, recently dedicated by the Bishop of Manchester, consist of new nave and side aisles and west end, facing the main road between Preston and Chorley. These provide seating accommodation for 264 additional worshippers, raising the total accommodation of the church to 686. The main entrance is placed at the south-west corner of the building, with suitable exterior porch. and an additional door is provided opposite on the north side. The west elevation faces the main road, and has a large five-light tracery window, and three similar three-light windows are provided on each side of the nave. The style of the church is late Decorated Gothic, and the extension has been carried out in accordance with the existing portion and of similar materials. The floor of the sacrarium has been relaid in marble. Messrs. E. Lewis, of Blackburn, are the contractors, and the whole of the work has been carried out from designs and under the supervision of Mr. Frank R. Freeman, architect, Bolton, whose drawing of this church is hung in this year's Royal Academy.

PROJECTED NEW WORKS.

Chemical Factory, Glasgow.

A new chemical factory is to be erected at Parkhead, Glasgow, for Mr. David Willox. Mr. Arch. Davie, Glasgow, is the architect.

Alterations, Marischal College, Aberdeen.

Alterations are to be carried out at Marischal College, Aberdeen, for the University Court.

Golf Club House, Aberdeen.

A new golf club house is to be erected in St. Fittick's Road, Aberdeen, for the Balnagask Golf Club.

Asylum Extensions, Bothwell.

The committee have decided to carry out alterations at extensions at Longdale's House, Kirklands Asylum, Bothwell.

School, Bethnal Green.

London County Council have consented to the erection of an addition to St. Matthias Infants' School, Bethnal Green, on the northern side of Hare Street.

Picture Theatre, Glasgow.

A new picture theatre is to be erected at 824-840, Argyle Street, for Mr. E. H. McKay. Mr. Neil C. Duff, Glasgow, is the architect.

Hospital Alterations, Aberdeen.

Alterations and additions are to be carried out at the City Hospital, Aberdeen, for the Aberdeen Town Council. Mr. John Rust, Aberdeen, is the architect.

Police Barracks, Bournemouth.

Sketch plans produced by the borough architect for the erection of police barracks at Bournemouth have been approved by the Town Council.

Church Hall, Govanhill.

A new church hall is to be erected in Dixon Road, Govanhill, Glasgow, for the Bridgegate United Free Church. The architects are Messrs. Thomson, Sandilands, and McLean, Glasgow.

Refrigerating Store, Aberdeen.

A new refrigerating store is to be erected for Messrs. Allan and Day in Poynernook Road, Aberdeen. Plans are prepared by Messrs. Brown and Watt, architects, Aberdeen.

Extension to Selfridge's Stores.

Messrs. J. J. Burnett and Son, Glasgow, have been appointed architects for Messrs. Selfridge and Co.'s new extension in Oxford Street, London. The estimated cost of the addition is £400,000.

Hall, Cambuslang.

The trustees of Hallside Parish Church have decided to erect a new hall, with kitchen and lavatories attached, at Hutchieson Street, Flemington, Cambuslang.

Alterations and Extensions to Church, Carfin.

The trustees have decided to alter and extend Carfin Parish Church, adding new transept, chancel, meeting room, vestry, and lavatories, at the corner of Cleland Road and Edinburgh Road, Carfin.

£117,000 *Housing Scheme, Newcastle.*

Newcastle City Council has adopted, by 31 votes to 18, the proposal to erect 688 dwellings of various types on its estate at Walker, the cost being £117,000, and the estimates showing a small surplus. Arguments in favour were the house famine in Newcastle, and the desirability of developing the estate with good class dwellings, while the Labour members held that the scheme would facilitate the provision of homes for munition workers coming to the city. The opposition argued that the time for such an expenditure was inopportune, and it was also suggested that the Treasury would not permit the money to be expended.

CORRESPONDENCE.

House Painters and White Lead.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your admirably impartial editorial comments on the report of the Departmental Committee on White Lead Paints, one point is not, I think, made quite clear. The facilities for cleanliness with which employers supply house painters, though they may be necessary and useful, are not compulsory. House painting not being a factory occupation has never been under regulation. It is the manufacture of white lead which is under special rules and regulations, and has been so since 1896, with the consequence that the cases of lead poisoning have been reduced by more than 90 per cent., and the dangers to the workmen are less than in many industries not classed as dangerous. It is because the white lead manufacturers, who have been compelled to adopt special rules, are able to point to this remarkable reduction in consequence of them, that they contend that the enforcement of similar rules in the dusty processes of house painting would be equally beneficial to house painters.

E. S. G.

EDINBURGH LADIES' COLLEGE.

The reconstruction of the Edinburgh Ladies' College has so far advanced that the eastern section, which was first undertaken, is now practically completed. The original buildings, which included the old Hopetoun Rooms, were opened about forty years ago as a ladies' college, and have been added to from time to time in the interval. The new school occupies the eastern section of a large area having a frontage to Queen Street of 160 ft., by about 140 ft., in depth to Young Street Lane. The portion built upon has a frontage of 70 ft. The remaining frontage and block to the west are occupied with the existing school, the reconstruction of which will form the second section of the operations.

The new building is laid out in a series of five floors, yielding extensive cloakrooms, bicycle-rooms, and lavatories on the basement floor, while the upper floors are sub-divided into classrooms for singing, sewing, examination rooms, art rooms, photograph developing rooms, etc.; also science accommodation for the study of physics, chemistry and optics; while on the roof there are a small conservatory and a large area to be devoted to the cultivation of plants in the open air.

The classrooms throughout are of liberal dimensions. Ultimately accommodation will be provided for nearly 900 pupils. Simplicity of detail prevails throughout the classrooms. The corridors are wide and lofty and are of fireproof construction throughout. They are lined with polished white tiles, with a double Wedgwood blue band. With a view to give cheerfulness of aspect to them the warm-air radiators against the walls are fitted with shelves, on which to display plants provided from the conservatory.

The design of the main façade is in a phase of Classic freely treated in detail,
the whole composition having a d
appearance, in harmony with the a
tural treatment of the building gr
the neighbourhood.

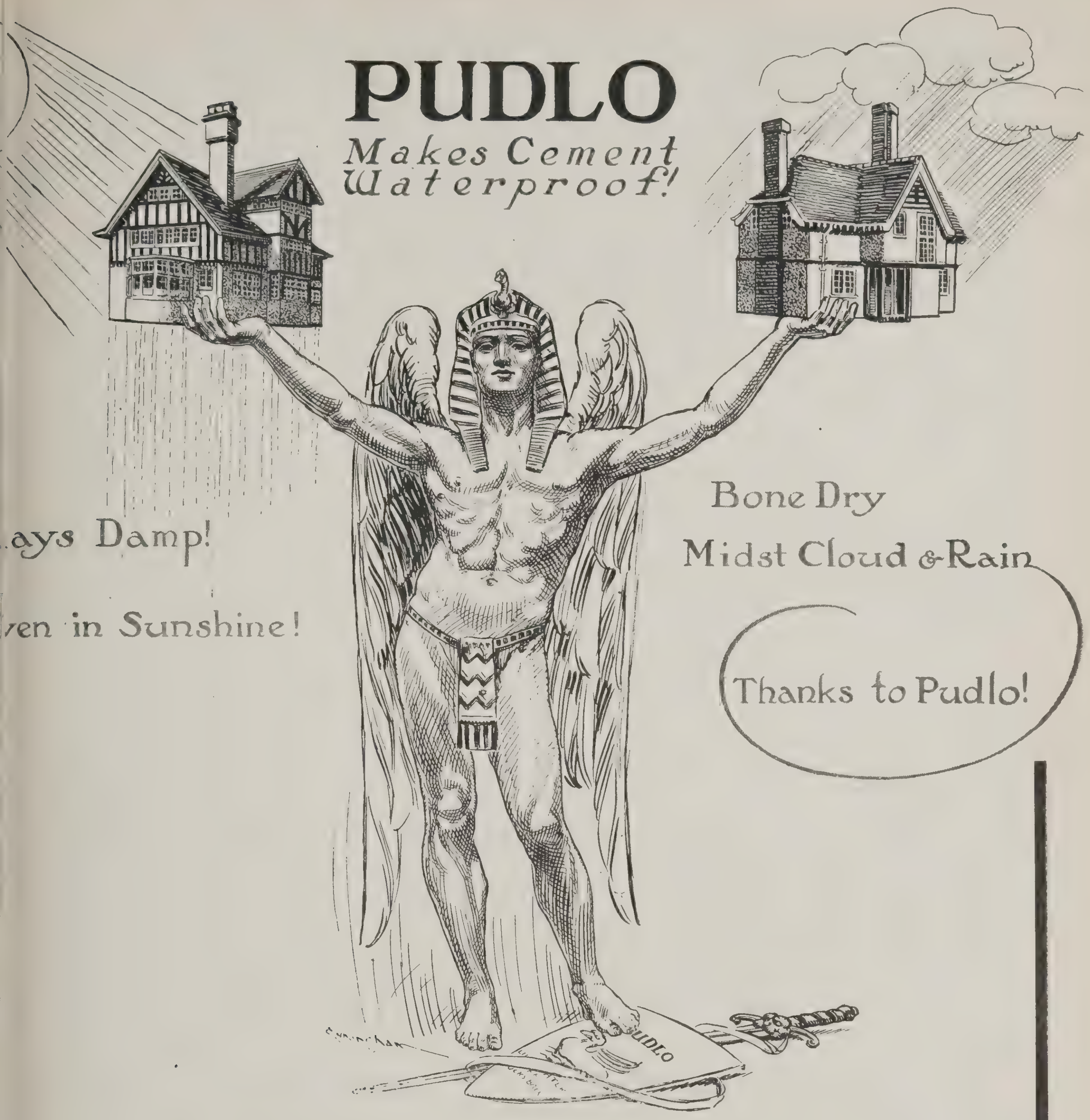
In this first section of the recons
the requirements for the second
have been provided for, the plans
been prepared to comprise the wh
mate accommodation.

The cost of the section of the w
completed was estimated at £23,
it is expected that the actual sum
somewhat less. The works hav
designed by and executed under t
sonal supervision of Mr. Hipp
Blanc, R.S.A.

PROGRESS OF LIVERP CATHEDRAL.

A few days ago Mr. Gilbert Sc
ducted the Liverpool Architectur
ciation over Liverpool Cathedra
Lady Chapel, which was visited l
of course familiar to most. One
with regard to it (according to a
the "Guardian") was that, on revi
the impression increased that th
ment was overdone, the narrownes
building throwing the walls too
gether, with the elaborate crestin
gallery bays, the carved Gospel
projecting figures, and the gorgeo
But, as a matter of fact, a critica
discovers resolute restraint in th
sion of lines and spaces left bare
ment. Yet it is true that there
and very properly, a sharp
between the ornamentation of t
like Lady Chapel and the massi
deur of the choir and transepts, w
and proportion are largely left to
their effect. Indeed, one of the
is to adjust the ornament to a bu
such dimensions. To test, for
the effect of glass at 120 ft. high,
in the top of the great "east" wi
already been filled with glass repr
provisionally the enthroned Ch
rounded by the Cherubim. This
studied in all lights and from
points of view as a guide to the t
of the windows generally.

Those familiar with the buildi
that the successive bays of the c
constituted by a series of quasi-t
the aisles being mere pass
pierced through the side walls
transepts. Consequently there
clerestory, and the wide and lofty
are in the outside walls, which ris
break along the line where the ou
of the aisles come in a cathedral
nary Gothic design. Besides, lo
the choir from the Great Transe
is now under construction, only
end window is visible, and as the
proceeds up the building, the pair
dows, on the right hand and on
come successively into view, but
can never take in more than one a
The general effect of the cross lig
out the source of the lighting bein
is to heighten the sense of mys
solemn grandeur. A subsidiary
that it will be possible to intr
sharper contrast between the wind
would be æsthetically satisfying
were seen side by side. And, in
proposed to adopt a distinctive
colour for each of the four wind
is, blue, green, red, and yellow
over, in the Lady Chapel it is
to secure colour relief by painting
ing the sculptured groups which
place in the reredos, the stone
work and recesses for which are
tically complete.


PUDLO
Makes Cement Waterproof!
ays Damp!
ven in Sunshine!
Bone Dry
Midst Cloud & Rain
Thanks to Pudlo!
PUDLO

Absent Dampcourses. Render inside the building with Pudloed Cement and Sand. This is much less costly than cutting out and inserting blue bricks or lead. It also gives a dry wall much quicker because of the time necessary for the moisture left in the wall to evaporate when a dampcourse is inserted.

Rough Cast. The unevenness of rough cast holds moisture, so that we probably receive more orders for Pudlo to cure such walls than for any other purpose. No rain can penetrate a Pudloed cement rough cast.

Beautiful Brickwork and stonework need not be covered with a cement rendering. Specify Pudloed cement to be used INSIDE. It may be finished with a $\frac{1}{8}$-inch coating of Keene's or Parian.

BRITISH!—(It always has been British). Manufactured by Kerner-Greenwood & Co., Ann's Place, King's Lynn.

TRADE AND CRAFT.

Builders' Merchants' Dividend.

Messrs. Alfred Goslett and Co., Ltd., builders' merchants, of Charing Cross Road, London, announce a dividend for 1914 of 5 per cent. on the Preference and Ordinary shares, after providing for bonus to managing directors and depreciation. A sum equal to 20 per cent. on the net profits is placed to reserve, and £2,740 is carried forward.

Mechanical Stoker Installations.

We are informed that the Mill Road Infirmary, Everton, Liverpool, has placed an order with Messrs. Ed. Bennis and Co., Ltd., of Little Hulton, Bolton (per the Brightside Engineering Co.), for six "Bennis" coking stokers and self-cleaning compressed air furnaces for Lancashire boilers; and that the Huddersfield Corporation Electricity Station has ordered four pairs of chain grate stokers, each grate 4 ft. 3 in. wide by 12 ft. 4½ in. centres for Stirling water-tube boilers from the same firm.

Wood-fibre Wall-boards.

From Messrs. Croggon and Co., Ltd., 16 and 230, Upper Thames Street, London, E.C., we have received "folders" which describe and illustrate "Fiberlic," of which also a sample has been sent to us for examination. "Fiberlic" is made from a root fibre—"an exceedingly tough, strong root"—by an improved process, in which the root fibre is chemically treated, rendering it vermin-proof and completely sanitary. It is then put together in layers with a fireproof, airtight cement between them, and the board is finished with a surface that readily lends itself to any kind of decorative treatment.

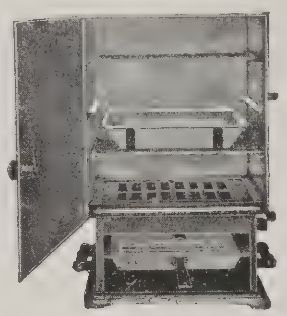
For this material it is claimed that it is extremely rigid and tough, will not warp, is highly fire and damp-resisting, is unimpaired by changes in temperature. is entirely sanitary and vermin-proof, that vibration does not affect it, and that it does not disintegrate or split. It is easily cut and fixed. Several interesting interior views photographed for the firm emphasise the adaptability of "Fiberlic" to the artistic treatment appropriate to the decoration respectively of stores, clubrooms, schoolrooms, hotels, etc.

"Magnet" Portable Electric Cookers.

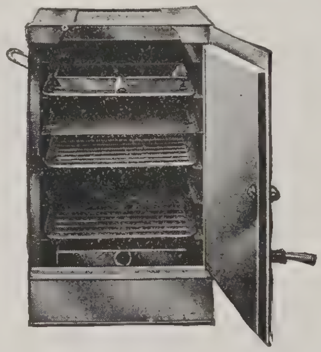
The two designs of electric cookers here illustrated are quite new, and have been evolved after much careful experimenting by the General Electric Co., Ltd. (67, Queen Victoria Street, E.C.), to meet the need of a cheap, useful, and reliable cooker sufficiently large for the requirements of a small family. Such a cooker as either of these can be hired out by the supply authority at a moderate rental; or, alternatively, may be purchased outright by the user.

Both designs are suitable for flats and houses where accommodation is limited. They are built up of stout, bright sheet metal, mounted on a rigid angle-iron frame. The size of the cooking space in model A (catalogue No. H.5669) is 12 in. by 12 in. by 9 in. This oven fits on to the top of a "Magnet" hot-plate and grill of the latest and most improved construction, and is held firmly by two retaining screws. The loading is 1,500 watts maximum, made up of two circuits of 750 watts each. By means of a polished deflector plate which can be placed under the heating element, if no heat for grilling is required, all the heat from the element is directed up into the oven. The design of the hot-plate is such that an uninterrupted uniform current of hot air ascends into the oven. Included are two wire grid shelves, baking tin, and grilling bars.

In model B (catalogue No. H5670) the size of the cooking space is 15 in. by 12 in. by 12 in., whilst the over-all dimensions are 22½ in. by 14 in. by 14 in. There are double walls throughout, including the door, providing a still air jacket. Bottom heat is provided by a "Magnet" hot-plate loaded to 800 watts with series parallel control which fits in the oven, and top heat by a specially-arranged "Magnet" red-hot heater, with the heating elements arranged in two circuits, each circuit being loaded to 700 watts. Thus the following total loadings can be obtained: 200, 700, 800, 900, 1,400, 1,500, 1,600, and 2,200 watts. Grilling can be carried out from the top heat. Three wire grid shelves, baking tin, and grilling bars are provided. This cooker is protected by patent No. 17688/13.



MODEL A.



MODEL B.

Earthing screws are provided in both models, and can be made use of if thought necessary.

The firm issue separately, as a special booklet, the section of their 1915 general catalogue that relates to electric heating and cooking, which contains illustrated particulars of "Magnet" fires, and of lamp radiators, convectors, non-luminous heaters, and heating-lamps, as well as of various apparatus and utensils for electric cooking. Most of the designs, both for heating and for cooking, add elegance to extreme cleanliness and efficiency.

OBITUARY.

Mr. Francis Bridges.

Mr. Bridges, who has died, in his seventieth year, after an operation, was a member of the firm of Messrs. Burford and Son, builders and contractors, of Hampstead

Mr. C. W. Dowdeswell.

Mr. Charles William Dowdeswell, whose death in his eighty-fourth year we regret to announce, was one of the most highly respected art dealers in the coun
experience extended over a long p
having founded the Dowdeswell
fully sixty years ago at 36, Chanc
English water-colour paintings
work of the Modern Dutch Sch
his special study in his earlier
his taste, judgment, and urbane
soon won distinguished clients
them members of the Bench
Tennyson, Ruskin, Rossetti, an
Jones also patronised his gal
became friends as well as custom
business grew, and he moved to
Bond Street. In the new rooms
held three exhibitions: the first-
Harmonies, Nocturnes"—was o
May, 1884. In 1886 the "Butterf
showed his work at the Dowdes
leries, this time a set of twenty
ings—twenty-one of the plates
duced in Venice, the five others in
Mr. Dowdeswell, who had taken
sons, Charles and Walter, into pa
published these etchings at £5
and they were sold out within thr
Single plates of the series have s
ised as much as £140 and £160.
of the same year—1886—the sec
of "Notes, Harmonies, Noctur
exhibited at the Dowdeswell Gall
the charming collection, meet
much praise and blame, would
been a financial success had not
Theobald purchased all the unso
After the firm occupied their
rooms at 160, New Bond Str
showed a splendid collection of p
Monticelli, and were the first in
to appreciate the austere and pe
of Segantini. Some thirty years
Dowdeswell added to his busine
of Old Masters, and won the con
connoisseurs and collectors. Ma
tant paintings passed through th
The most notable was a "Mad
Child" by Andrea Mantegna, w
passed to Consul Weber, of Ha
whose sale a few years ago i
£31,000. Mr. Dowdeswell took
terest in the business right to the
much of his spare time was em
making copies of Turner ar
Foster drawings. Had he li
August he would have celeb
diamond wedding. His widow
one years of age.—*Morning Pos*

LABOUR MOVEMEN

Aberdeen Granite Trad

Sheriff Laing has issued his
the arbitration between the
Granite Trade Association and
deen Operative Masons' and St
Union with reference to workin
by-laws. He grants the requ
employers that the men may be
ally called upon to work du
hours at overtime rate. Wages
main as before, except that the
lating to turners shall read: "
dard for turners shall be 8d., w
mum of 6½d. per hour," and to
the granite yard get an incr
farthing an hour—to 8d.

Blackburn Labourers.

Judge Parry, acting as arbi
awarded the labourers engag
building trades of the district a
of ½d. per hour.

Navvies and general labou
joiners' and masons' labourers
receive 6½d. per hour, flag
slaters' labourers, 7d.; hod ca
plasterers' labourers, 7½d.

THE
ARCHITECTS' & BUILDERS JOURNAL.

Wednesday, May 26, 1915. Volume XLI. No. 1064.

No. 137.

(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

MAY 26, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 106

EDITORIAL.

IS the contractor a gambler? In a popular magazine, he has been included in an article on "Six Tremendous Gamblers—and the Risks They Run." It is said that the contractor "gambles all the time on the appalling forces of the universe, and he bets that his work will stand against terrific winds and floods and pressures of earth. He bets that he will be free from ruinous lawsuits. He plays a Monte Carlo game every day." As this silly indictment has been promptly repudiated on behalf of America, there is no need to say that it is without application to our own country. British contractors do not gamble with the forces of nature, although, being merely mortal, they have not yet arrived at the point of complete control over cataclysms. But great is the science of calculation, and our contractors have an almost exaggerated respect for it, and for the structural engineer who puts it to so many interesting applications, who is always scrupulously careful to eliminate every element of chance, and whose "factor of safety" is not only maintained in rude health and robustious strength, but is in some few instances worshipped as a fetish.

* * * *

Few indeed, therefore, are the failures of buildings, in proportion to those that sturdily withstand "all the airts that blow." Would that the same could be said about the builders. Their failures, financially, are notoriously and phenomenally numerous. Here, it is to be feared, the charge of gambling could not be in every instance rebutted. In competitive tendering, the builder is rather addicted to "the Monte Carlo game." That is to say, he leaves too much to chance in the details of his pricing. In his anxiety to arrive at a low total, he scorns ascertainment with respect to the items, with the frequent result that he gets the contract and realises a substantial loss upon it. Reckless tendering is not the only gambling element in the business. "Speculative" building is probably a still more prolific cause of bankruptcy; and whether or not "speculation" is a form of gambling depends upon the rashness of the hazard. But it is the smallest builder who is the greatest gambler. True he does not stake much, and, as often as not, what little capital he risks is borrowed; and the feeling that he has little to lose and much to win makes him a conscious gambler. Unfortunately he brings into disrepute a trade of which he is by no means representative, except as one of its perhaps unavoidable accidents.

* * * *

Mr. John Murray, F.R.I.B.A., to whom has been entrusted the not very enviable task of revising the Regent Street Quadrant design, brings to it, among his many other qualifications, that of being a thorough Londoner. According to "Who's Who
in Architecture," he was born in 1864, an
educated at the Haberdashers' School at Ha
the Blackheath School of Art, and the R.
A.A. schools. Articled to Mr. Edward
(London), with whom, after serving for five
he remained as managing assistant for a
period of seven years, Mr. Murray began p
in 1892, in London, and was for seven y
partnership with Mr. Frank Foster, A.R.
F.S.I. Messrs. Murray and Foster won the
competition for Rotherhithe Town Hall. I
ciation with Mr. Foster, he designed also th
Burlington at Dover. Mr. Murray's separat
include the Great Queen Street Theatre,
modelling of Westminster City Hall, extens
Hampstead Town Hall, Westminster Disin
Station and Dwellings, Messrs. D. H. Eva
Co.'s premises in Oxford Street, the rebuil
Cumberland Lodge (Windsor Park), the
Church in Willesden Lane, and the much-
building for H.M. Commissioners of Woo
Forests in Parliament Street.

* * * *

In 1904 Mr. Murray was appointed Crow
tect and Surveyor, and in that capacity ha
intended the designs and erection of ma
buildings on the Crown Estate in the West E
will be remembered that in 1912 he was ap
by the Treasury a member of the committee
sider the design for completing the rebuildin
Quadrant, the other members being the
Plymouth, Sir Henry Tanner, and Mr.
Blomfield. This committee's report wa
marised in our issue of March 19, 1913.
which the traders who gave evidence to t
mittee unanimously desired were (1) the
of the columnar treatment with recessed
above the mezzanine, (2) the alteration
arcaded treatment of the ground floor and
nine of the hotel design, (3) a simpler an
expensive design than that proposed by M
Several trader-witnesses regretted the sub
of Portland stone for the painted stucco o
design, on the ground that the stone is le
cleaned and is much more absorbent of li
the stucco.

* * * *

With respect to the sky-line, it was state
report that while Sir Aston Webb was in f
continuing the roof-line of the hotel the fu
all along, Sir Thomas Jackson, Mr. New
Lanchester, Mr. Flockhart, and Mr. Riley
that, in order to keep as much light as po
the street, and to obtain a better proporti
street in relation to its width, the roof-lin
be lowered to right and left of the hotel;
architect-witnesses were unanimous in th

is vital to continue the line of the main cornice
the string-course above the mezzanine floor
hotel façade. They were unanimous, also,
ding that if the design for the rest of the
ant is to harmonise with the design of the
lilly Hotel, any such expanse of glass as from
60 ft. between the visible points of support
of the question. After digesting the evi-
, the committee put forward nine recommen-
s, to which, no doubt, Mr. Murray has en-
ured to give effect, except that he seems to
provided for the lowering of the roof, as
ed by the traders but deprecated by the
ittee.

* * * *

t, as we have said, Mr. Murray has been en-
d with an unenviable task, is self-evident;
the circumstances, it would be marvellous if
he or anyone else could succeed in recon-
the diametrically opposed opinions of the
ects on the one hand and of the traders on the
considering that the problem was not to
a new scheme but to patch up a compromise.
orman Shaw's strong individuality greatly
iced an issue that, at the outset, should have
determined by a more pliant regard for the
g interests and instincts which, after all, it
function of the architect not to oppose but
to architectural account, by expressing them
ns of architecture. Between architecture and
erce there is no real and fundamental antago-
Disagreement between these parties arises
nutual misunderstanding, and from exaggera-
f the point of view. From the fierce contro-
that has arisen over the Regent Street
ant case there emerges the one clear issue of
rong reaffirmation of a truism—that the
ect should consult his clients, and that the
should be imbued with complete
nce of the practical wisdom of architectural
. It is to be feared, however, that, at the
he materialisation of the revised scheme can
esult in a monument to the irremediableness
magnificent initial mistake—that of Mr.
n Shaw's undue assertion of pure as distinct
pplied architecture. If Mr. Murray has suc-
l in obliterating all evidence of a belated com-
e on a sharp contention, his powers must be
hort of miraculous.

* * * *

essor Flinders Petrie's delvings into the
past do not necessarily discount his at-
to penetrate the immediate future, but a
d Egyptologist who assumes the rôle of
tic publicist astonishes us by his
ility no less than by his daring. At
nual conference of the British Constitution
ation, he suggested two courses by which the
burdens of the war might be met. Foreign
nent, he said, would not supply more than
e required funds. There remained only the
roperty in lands and houses, and he feared
e shortsighted selfishness of earners might
the confiscation of half the rents of the
y for a generation—a course that would spell
a great number of people, and would destroy
edit of the whole country. Alternatively,
ing must be severely taxed, and the wide
n would not tend to ruin any class. Whether
ofessor simply threw out these opinions as
ht top-soil of a singularly astute mind, or
r they are the trophies of deep and strenuous
tion, does not matter very much, because,
case, it is unsafe to prophesy. Develop-
as yet unforeseen may upset all calculations
e based upon ascertainable data. Either of
ofessor's alternatives portends a pretty black outlook for building interests, but we must confess that his dismal forebodings do not make our flesh creep. We have more faith in our Empire's resiliency and recuperative power, in the skill of our financiers and business men, in the common sense of our "earners," more confidence in the nation's genius for falling on its feet, than to imagine for a moment that this war will leave us prone under a crushing burden. Professor Flinders Petrie's next essay in anticipation might profitably be more optimistic; but, on the whole, one would prefer him to keep within the domain in which he has earned such brilliant distinction, and whence he speaks with unquestioned authority.

* * * *

The letter from Sir Ernest George, A.R.A., which appears in our correspondence columns arrived just too late for inclusion in last week's issue. In effect, it is a mild protest against the raising of contentious issues at a moment when solidarity is particularly desirable; an exhortation to all who have votes to record them; and a word of advice as to the right type of candidate to be chosen. On the first point we are so much in agreement with Sir Ernest that we abstain from the criticism which his letter seems to provoke. His second point we have, on a previous occasion, urged so strongly as to evoke the very specious plea that, in the absence of means of discriminating between the candidates, it is safer to abstain than to vote blindly. The "thirdly and lastly" of Sir Ernest's ingenuous little homily—that "men of standing and ability are the safest guardians of our art and its interests"—will, we suspect, be itself regarded in some quarters as a contentious issue.

* * * *

Although demarcation disputes are now less frequent than they were before conciliation boards were established, instances are not yet rare. A typical case recently came before the London Joint Conciliation Board. The plumbers engaged on a certain Government job claimed that they were entitled to do work that was being done by smiths and fitters, and struck in protest, and, incidentally, in breach of the working-rule agreement which provides that such disputes shall be submitted to conciliation. When the matter came before the Joint Conciliation Board, the plumbers' representatives protested against the meeting being held, and retired from the proceedings. The Board, however, carried a resolution to the effect that all work in connection with hot or cold water supplies, domestic or otherwise, in which iron, brass, copper, or other similar hard metal piping is used, may be executed either by smiths and fitters or by plumbers, at the discretion of the employer. In the upshot, the employer arranged that the job should be completed in steel pipe instead of lead pipe, and the services of the plumbers were no longer required. It is to be trusted that the lesson will not be lost upon them.

* * * *

With respect to the plate in our last week's issue showing the Council House, Mortlake, we have received an interesting note from Mr. William Thomas Goodale, Clerk to the Urban District Council of Barnes, who, after remarking that "the illustration is the best I have seen of the front of the building," proceeds: "You may be interested to know that Turner's famous picture of 'Mortlake Terrace' is taken from and shows the western side of the Council House. The picture was painted in 1827. It was sold in 1864 for 1,050 guineas, and in 1895 it changed hands at £5,460. At the 'Holland' sale at Christie's in 1909 it was purchased for £13,230. The house and grounds were purchased by the Council in 1895 for £3,000."

HERE AND THERE.

BY way of further comment on the similarity that exists between the methods of the Germans when they swept through France in the autumn of 1870 and the methods which distinguish them to-day, I give below in parallel columns an extract from "Le Débâcle," by Zola, descriptive of the destruction of Bazeilles, outside Sedan, and an extract from the Belgian official report on the sack of Termonde, to which is appended an account by Mr. J. H. Whitehouse, M.P., who paid a special visit to the town after its destruction.

1870

"But that which froze every heart was the sight of the ruins—the ruins of a village which three days previously had worn such a smiling aspect with its pleasant houses girt with gardens, now crumbled to the ground, annihilated, displaying but scraps of walls blackened by the flames. The church, a huge funeral pile of smoking beams, was still burning in the centre of the Place, whence arose a column of black smoke that spread out on high like mourning plumes above a hearse. Entire streets had disappeared, nothing remained on either hand—nothing but piles of calcined stones fringing the gutters amid a mass of soot and cinders, a thick inky mud which spread over everything. At the various crossways the corner houses had been razed to the ground, carried away as it were by the fiery blast that had blown past these spots. Other houses had suffered less grievously; one had by chance remained standing, isolated, whilst those on its right and left seemed to have been hacked by shrapnel, their upreared carcases resembling gaunt skeletons. And everything exhaled an unbearable stench, the nauseating smell of fire, especially the acrid odour of the petroleum with which the floorings had been deluged. Then, too, there was the mute desolation of the household goods which the villagers had tried to save, the poor articles of furniture that had been flung from the windows and shattered by their fall; the crippled tables with broken legs, the wardrobes with their sides ripped open and their chests rent asunder; the linen, too, lying here and there, torn and soiled, with all the woeful residue of the pillage melting away in the rain. And on glancing behind one gaping house-front and between some fallen flooring one could espy a clock standing upon a mantelpiece that still adhered to the wall of an upper storey."

1914

"At 9.15 a.m. on September 4 the German Army began to shell Termonde, and soon afterwards it entered the town. . . . At about 3 p.m. some pioneers (of the 9th Battalion) set fire to the building-yards, and to four groups of five dwelling-houses in the centre of the town. . . . Next day began the complete destruction of the town by fire, under the direction of a Major von Sommerfeld. The hospital was not spared: it was drenched with petroleum and set alight. . . The chapel of the Béguinage, a building of the late sixteenth century, was set on fire the same day. Meanwhile the German soldiery were engaged in completing the work of pillage begun on the previous evening. Only on September 7 did the conflagration cease, the pioneers having to go off to destroy roadways. . . ."

"I went through street after street, square after square, and I found that every house was entirely destroyed with all its contents. It was not the result of a bombardment; it was systematic destruction. In each house a separate bomb had been placed, which had blown up the interior and had set fire to the contents. All that remained in every case were portions of the outer walls still constantly falling, and inside the cinders of the contents. Not a shred of furniture or of anything else remained. Sometimes my passage was barred by the fallen houses. This sight continued in street after street throughout the entire extent of what had been a considerable town. It had an indescribable influence upon the observer, which no printed description or even pictorial record could give."

It will be noted from the above that the same brutal spirit is in both, the only difference being in the advance in the science of destruction. In 1870 the Germans systematically soaked buildings with petroleum. To-day they use a still more fiery medium, petrol or celluloid, but the old Berserker fury is the dominating factor in each alike. Of what has been perpetrated in Belgium and in France we already have some idea, but not until the War is over shall we be able to gain any complete estimate of the havoc wrought. What, for instance, will be the final state of Reims?

UBIQUE.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or
expressed by correspondents, who are asked to be brief, and to write on
only of the paper. Every communication must bear the name and a
the sender.

R.I.B.A. Council Elections.

To the Editors of THE ARCHITECTS' AND BUIL
JOURNAL.

SIRS,—I regret to learn that there are still p
and party questions disturbing our Institute
in this time when we wish to avoid all in
dissensions.

I hear indirectly that a manifesto has been
with the object of influencing votes in the in
of a party or clique.

It is hoped that all members will perform
duty as voters. The composition of the Cou
important in the interests of architecture, and
who are apt to criticise the Institute's act
inaction have only themselves to blame if the
shirked the obvious duty of electing the Coun

All members should make a point of rec
their votes, supporting candidates on their
and realising that men of standing and abili
the safest guardians of our art and its interest

ERNEST GEO

[We make some comment on this subject
editorial on the preceding page.—EDS. A. an

The Strength of Filler Floors.

To the Editors of THE ARCHITECTS' AND BUI
JOURNAL.

SIRS,—I am very much interested in Mr
dram's letter in your issue of May 12th with
ence to my article on the strength of filler flo

May I point out that he has made a slig
calculation in the second paragraph of his
The floor shown in my article with a M.R.
inch-tons would carry safely a load of 2.6 cw
square foot (not 2 cwt., as Mr. Waldram
over a span of 10 ft.

It would be interesting if, in the series of
on steel-framed buildings which Mr. Waldra
present contributing to your columns, he
include some notes on filler floors, and gi
further information in regard to this subject

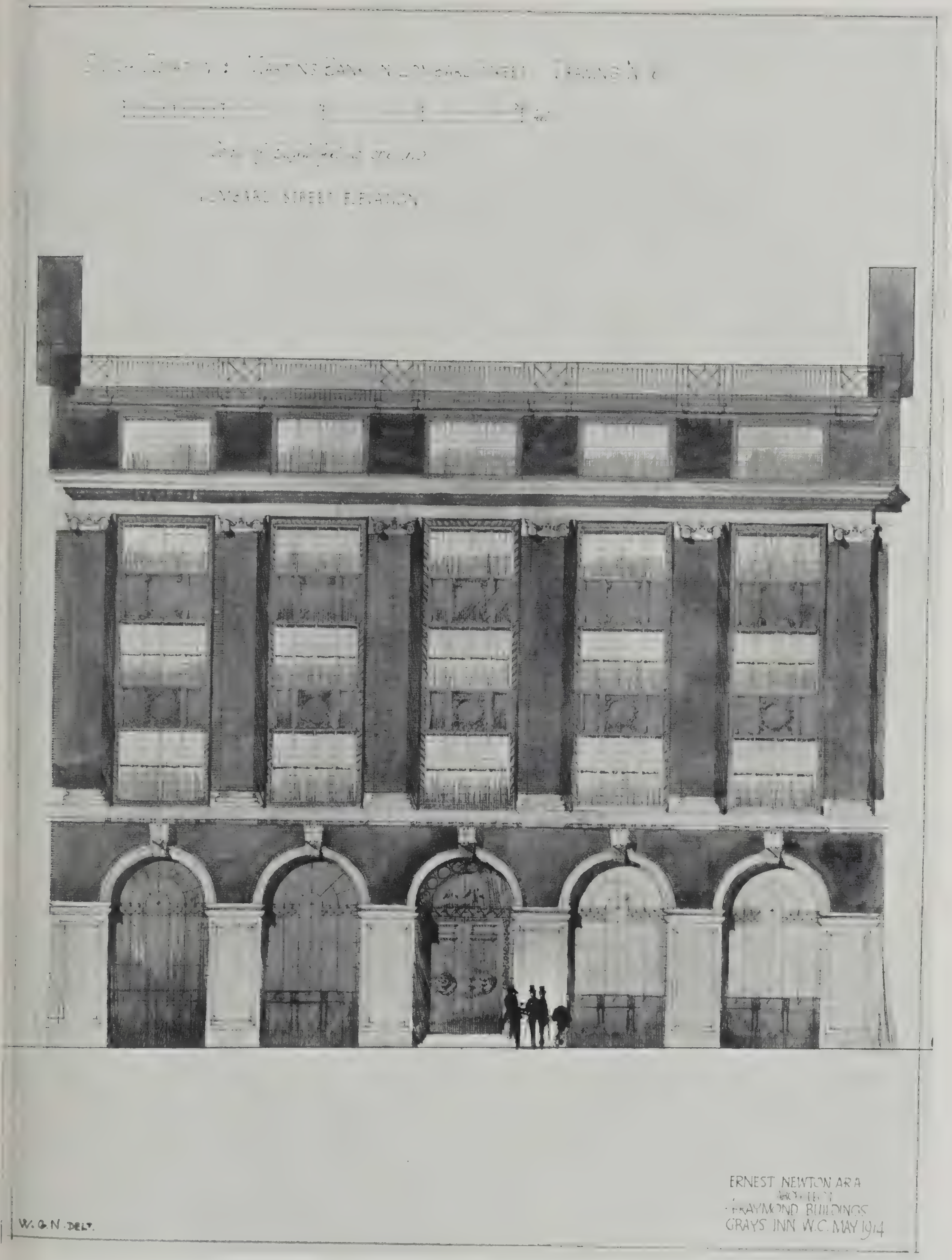
A. C. MES

Concrete Roofs.

To the Editors of THE ARCHITECTS' AND BU
JOURNAL.

SIRS,—The article by Mr. Thomas Po
"Practical Points in Cottage Construction
appeared in your issue of May 5 should c
itself to all architects because of the pract
perience Mr. Potter has had. If it is true
ounce of practice is worth a pound of prece
Mr. Potter's words are indeed weighty,
there are few men who have been for s
period in daily touch with both the practi
theoretical parts of cottage construction.

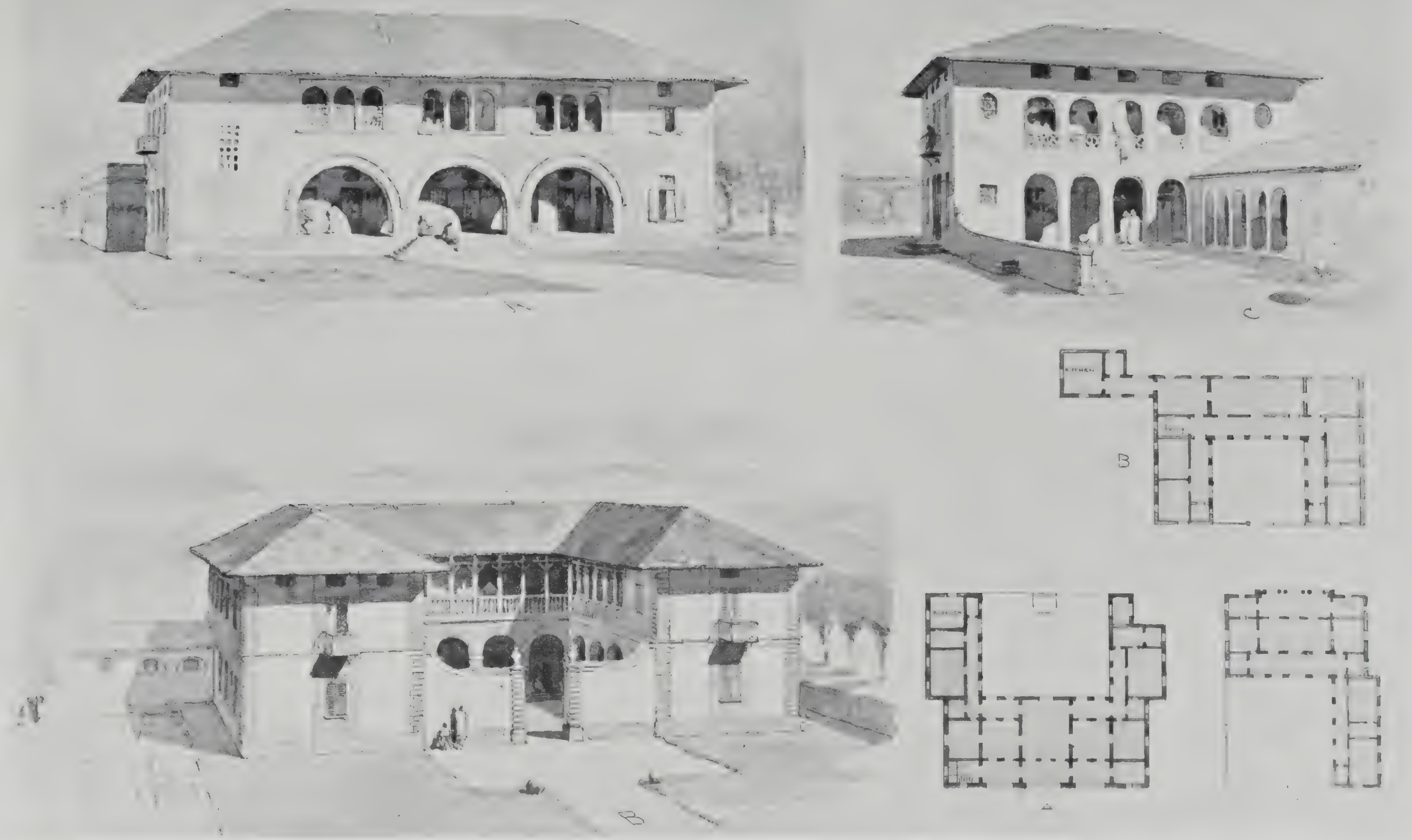
I happen to know Mr. Potter, and he is o
most remarkable men in the building tr
never skip one word that he writes. H
author of a book on concrete, and h
aptly entitled the "Father of Concrete."
real reason in writing this is not so much to
Mr. Potter as to point out that while con
pands and contracts with the change of
ture this is due to changes in moisture m
than to swelling and shrinkage from tem
in fact, "concrete expands and contracts e
it is wetted and dried." In this respect
slightly resembles a piece of timber. I
information not only on my personal invest



CURRENT ARCHITECTURE (SERIES II.). XXII.—MARTIN'S BANK, LOMBARD STREET, LONDON, E.C.

ERNEST NEWTON, A.R.A., P.R.I.B.A., ARCHITECT.

(Royal Academy Exhibition, 1915.)



CURRENT ARCHITECTURE (SERIES II.). XXIII – HOUSES FOR THE STAFF OF H.H. THE MAHARAJAH OF INDORE.

SIR ERNEST GEORGE, A.R.A., F.R.I.B.A., AND A. B. YEATES, F.R.I.B.A., ARCHITECTS.

(*Royal Academy Exhibition*, 1915.)

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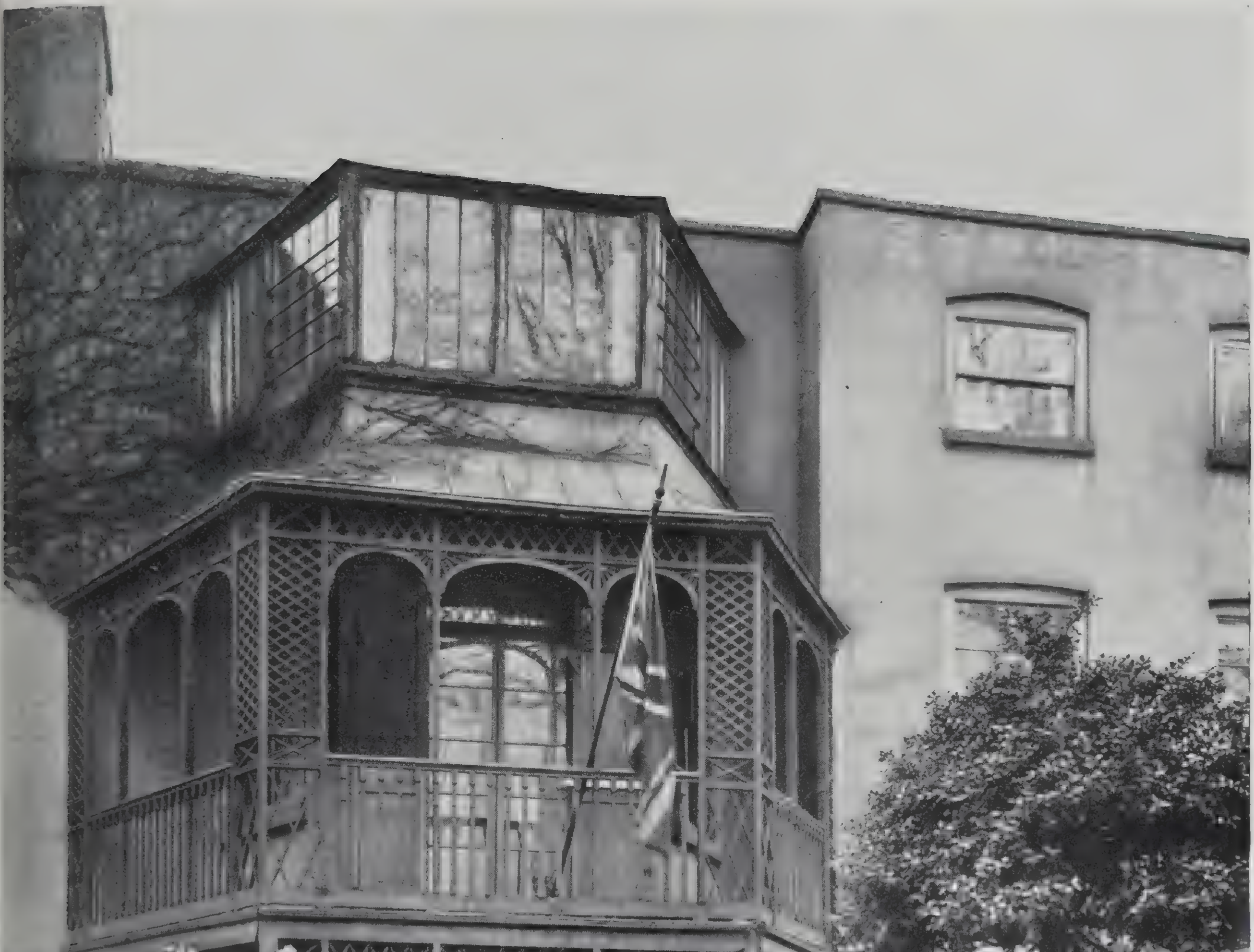
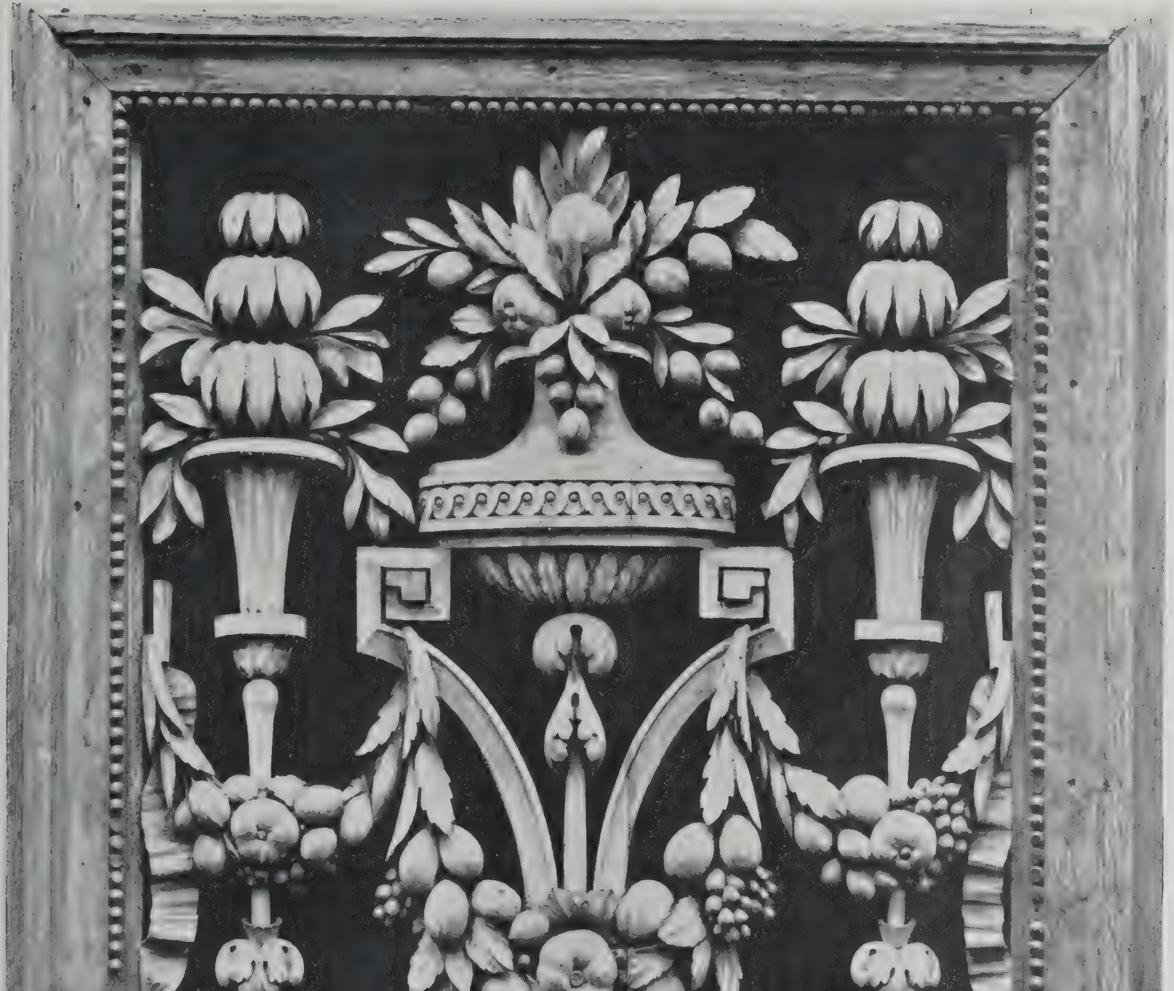


SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XLIV.—HOUSE ON THE TERRACE, BARNES.



DETAILS OF CRAFTSMANSHIP. XIX.—PANEL OF CARVED LIMEWOOD IN SHUTTER: LOUIS XVI. PERIOD.

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OF THE
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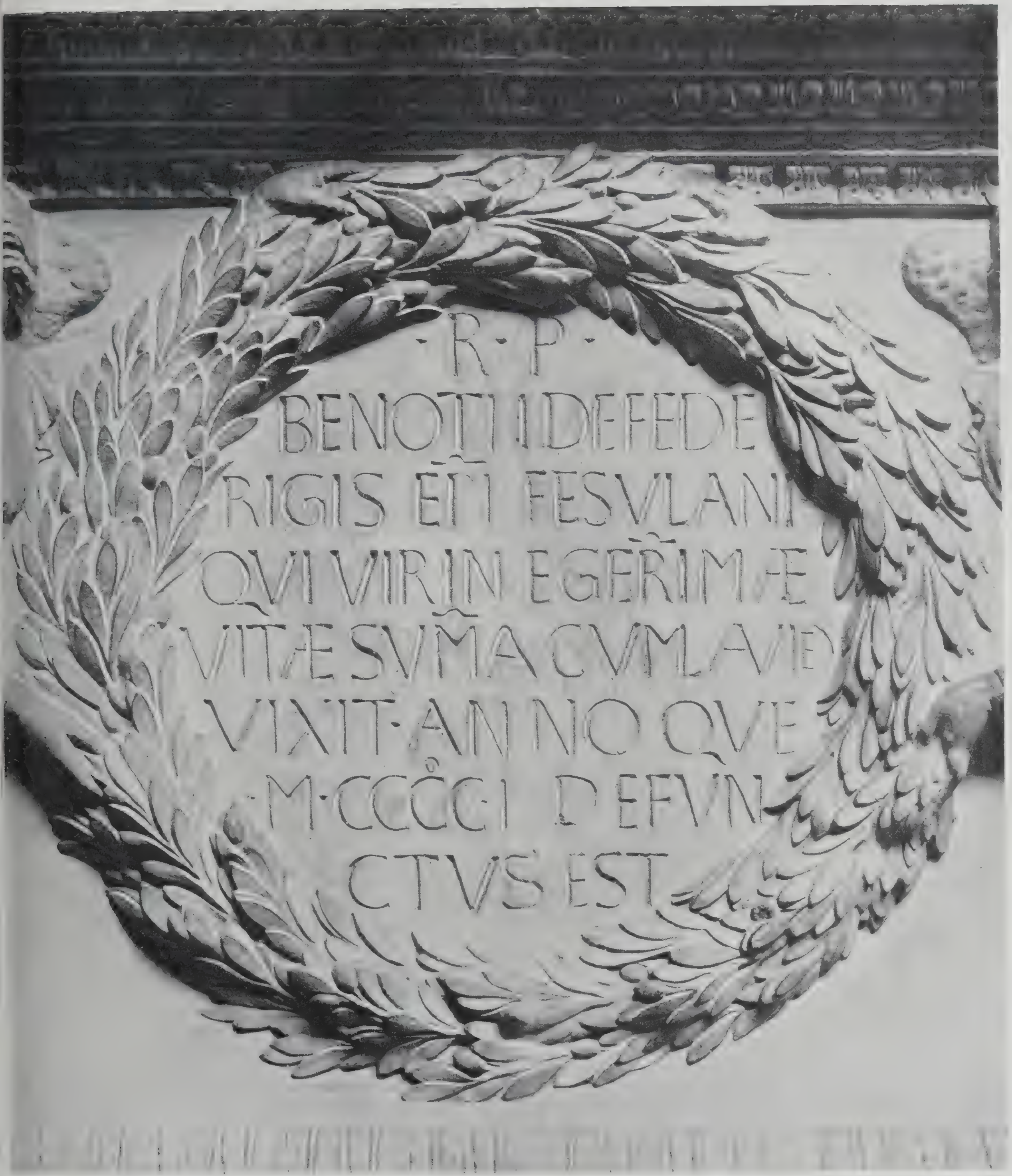

TABLETS AND INSCRIPTIONS. II.--INSCRIPTION ON MARBLE TOMB IN S. TRINITA, FLORENCE.

BY LUCA DELLA ROBBIA.

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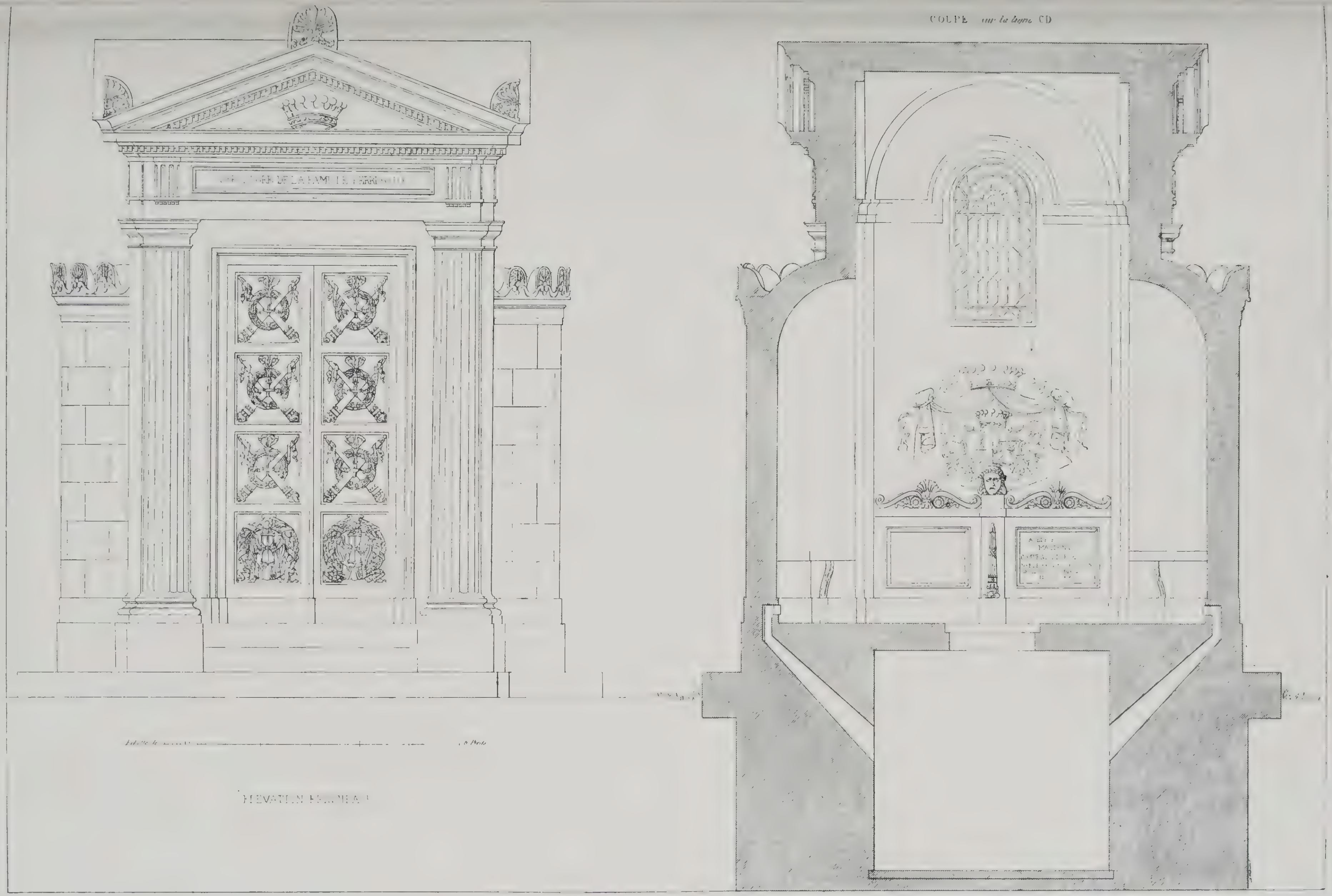
UNIVERSITY of ILLINOIS



FRENCH MONUMENTS. XVIII.- PERREGAUX MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.

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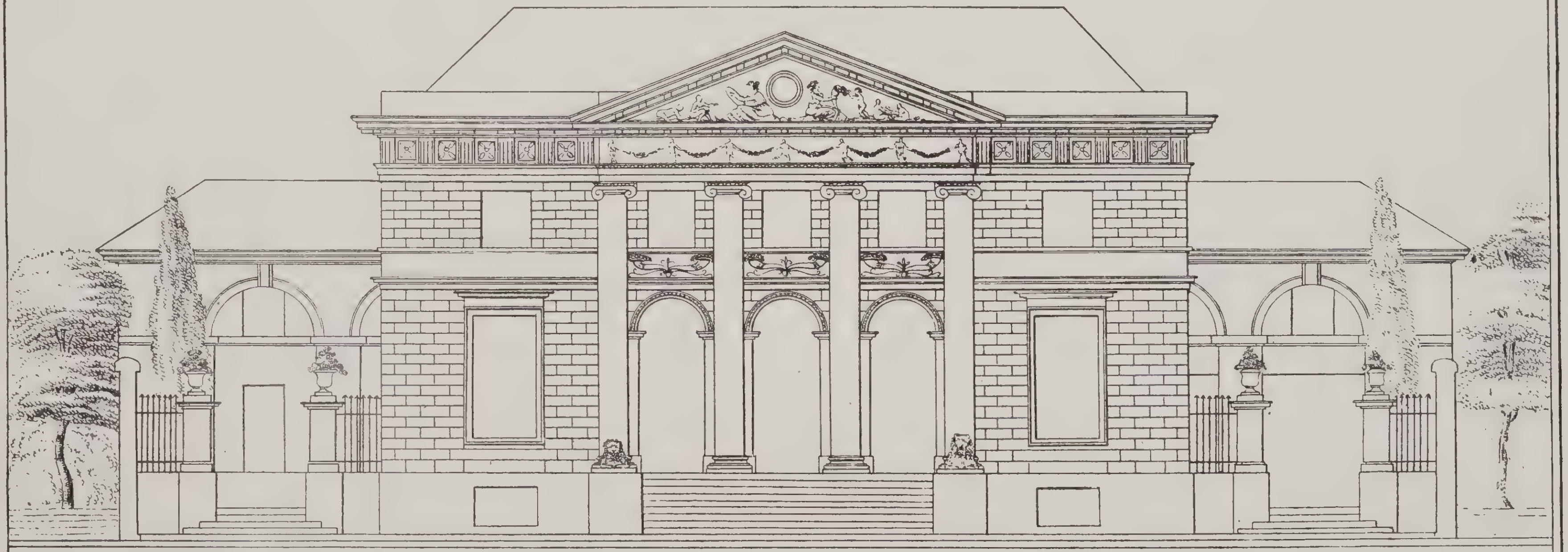
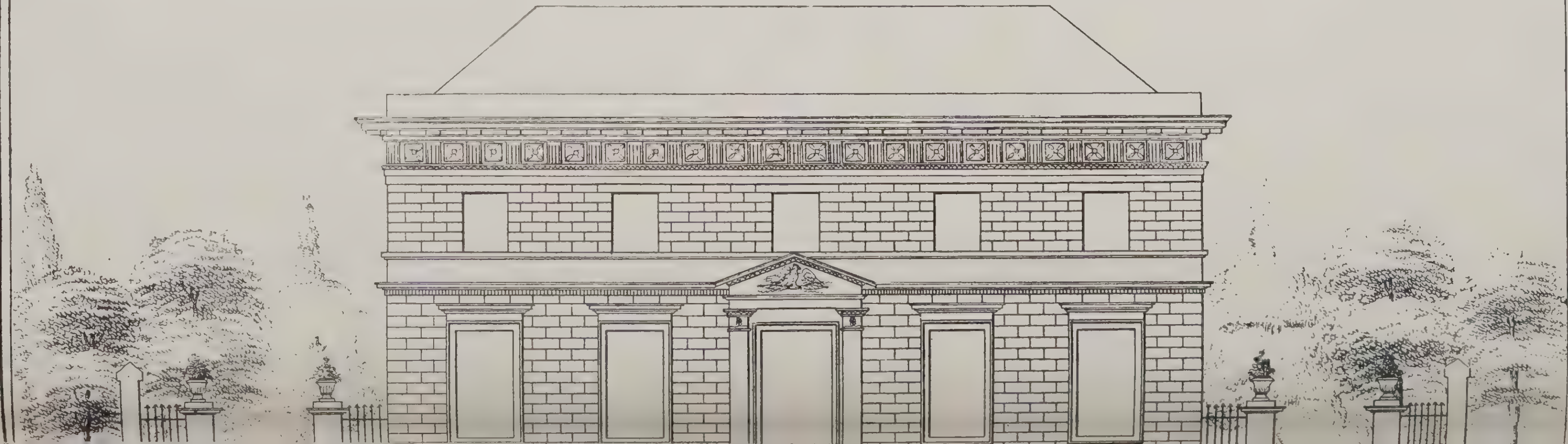
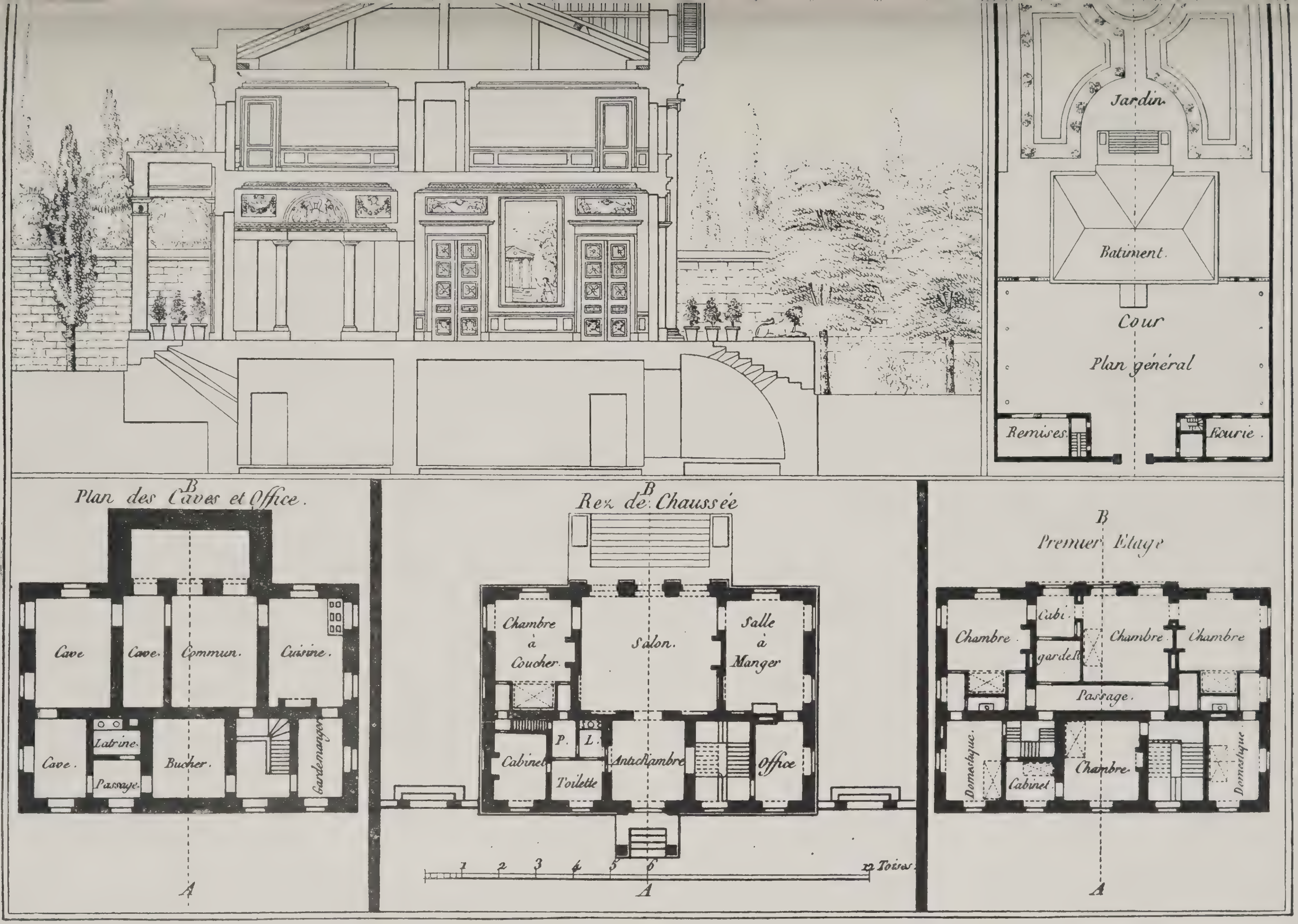
UNIVERSITY OF ILLINOIS

Élévation du Côté du Jardin.



Élévation du Côté de l'Entrée.





DESIGNS FROM KRAFFT. IX.—COUNTRY HOUSE NEAR MARLY.

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on the five years' tests which were made on mental concrete roads in America, and which ully commented upon in every trade paper last . Your journal also published on March 31 he following paragraph in an article entitled Economical Disintegration of Defective Con-": "When water is brought by a capillary aided by absorption or adsorption, or both, ontact with a group or groups of the unted cement particles that exist in all concrete, eactions with new volumes are probably set the rigid matrix of set cement." It has also stated that "The importance of waterproofing ete becomes more apparent on account of the sion and contraction of concrete due to the ption and evaporation of moisture." Thus it n that when water or dampness is kept away cement-concrete by waterproofing it, not only acks discounted but disruption is prevented. been my business for many years to investiand study cement waterproofing, and there is ubt the increasing success of waterproofed it flat roofs is explained by the above quota- I think there is no district in England withuch roofs, and failure to waterproof them is sible when my simple instructions are followed.

J. H. KERNER-GREENWOOD.

"*The Curves of Life.*"

e Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

S,—I have to thank you for a very kind review y book called "The Curves of Life" in your for May 5. I do not, of course, for a moment t any architect to believe that one of their numven if he were a Leonardo, could have taken a as the model for a staircase, but if you quote my nent in favour of Leonardo having done so it l perhaps be fairer not to omit one or two of its tial points, although I am well aware that space not permit you to give any such closely-argued in full. So I will only mention the points you yourself, and I will ask you to be so good as to o your review the fact that, of course, Leonardo ambidextrous, though naturally left-handed, and the shell which has so many points in common the French staircase is unknown in France, and is iar on the coast of that particular part of Italy which Leonardo came to France. The staircase uilt between 1516 and 1519, which are the years g which the Italian Leonardo lived within a few of Blois, where the staircase was built.

rmit me to add also that French historians and tects who have attributed the design of Chamto Leonardo, on far less evidence, have accepted ttribution of this staircase at Blois to the Italian somewhat surprising unanimity; and this attribudoes not, of course, rest solely upon the argument t the shell, though I am bound to confess that it he shell which first suggested to my own mind that an attribution might be possible. I am only too aware how far-fetched and fanciful any comparibetween a natural object and a building must to men who study the one without any knowe of the other. I realise also that at the present the architect must specialise on buildings, and have no time whatever for any form of biology tural science, but you might perhaps bear in mind specialisation of this kind was unknown when ardo lived, and that if ever it had been possible n architect to utilise his scientific researches in his tic work, this possibility would have been more ent in the case of Leonardo than in the case of ne before or after him.

THEODORE A. COOK.

THE PLATES.

Martin's Bank, Lombard Street.

THIS is an admirable design by Mr. Newton, and though no more than a scheme in the sketch stage—the War having stopped it for the present—we hope to see it carried out eventually. The upper floors are arranged as offices, the top floor being planned as a restaurant.

Staff Houses, Indore.

These are for aides-de-camp and other members of the staff of H.H. the Maharajah of Indore, in connection with the Shirpur Palace. The walls are of brick and rubble, plastered on the face, the arcades being of stone.

House on the Terrace, Barnes.

The Terrace at Barnes faces the river. It is lined with houses of the Late Georgian period. The one now shown has a trellis verandah around a bay which is of exceptional interest.

Carved Shutter Panel.

This graceful and vigorous piece of work is in the Victoria and Albert Museum, South Kensington. The carved panel is in the upper part of the shutter.

Inscription from Italian Tomb.

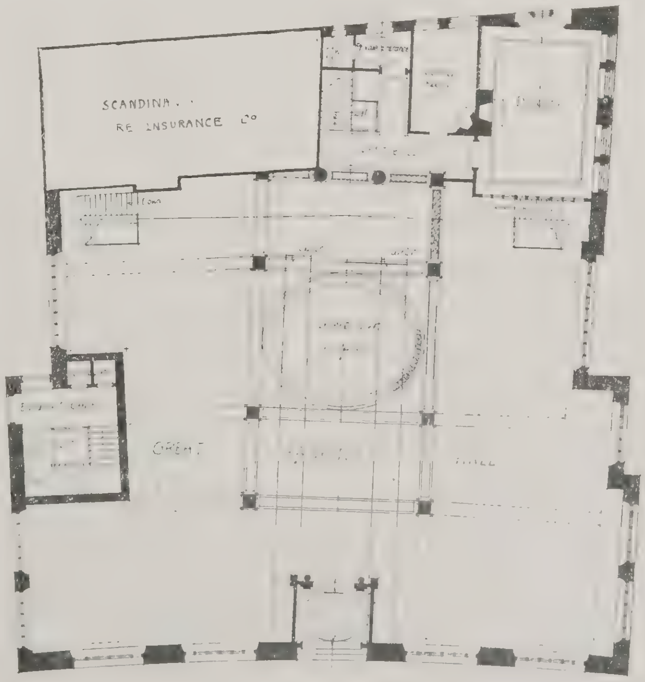
A better example than this of a wreath enclosing an inscription it would be difficult to find. The lettering fills the space perfectly, and the wreath has just the right amount of relief. The tomb of which this is a detail is that of Benozzo Federighi, Bishop of Fiesole, and is the work of Lucca della Robbia (1399—1482).

Perregaux Monument in Père Lachaise.

This takes the form of a small mausoleum, with the vault in the base. There are many monuments of the same character in the great Cemetery of Père Lachaise.

House near Marly.

This plate is typical of the style which Krafft did so much to spread, the style of late eighteenth and early nineteenth century in France. Both elevations merit careful attention, the entrance front being a strong and original piece of design, while the plans are, like others in the same series, very suggestive and interesting.



MARTIN'S BANK, LOMBARD STREET, LONDON, E.C.

LEGAL.

Light and Air Dispute Settled.

Murray and Others v. Agnew.

May 13. Chancery Division. Before Mr. Justice Astbury.

This was an action in regard to the ancient lights of 48, 50, and 50a, Albemarle Street, W. Plaintiffs asked that the defendants should be restrained from erecting on their premises at 3 and 4, Albemarle Street any building higher than that formerly standing there and recently demolished, so as to darken or obstruct any ancient lights or windows of the plaintiffs' premises and thereby cause a nuisance or illegal obstruction to the said ancient lights or windows, as the same were enjoyed before the defendants' building was demolished.

Mr. Frank Russell, K.C., and Mr. Pollock appeared for the plaintiffs and Mr. Micklem, K.C., Mr. Cave, K.C., and Mr. A. Cartmell for the defendants.

Mr. Russell, in opening, stated that Mr. John Murray was the well-known publisher and owner in fee simple of 50 and 50a, Albemarle Street, and Mr. W. H. Dawson was the owner in fee simple of No. 48 in the same street, and Messrs. Blount, Lynch, and Petre carried on business as solicitors at No. 48. The defendants were the celebrated art dealers, Mr. William L. Agnew and Mr. C. Agnew. The windows of the plaintiffs' premises had remained unaltered for the last twenty years and opposite was the site of No. 3 and 4, owned by the defendants, and there had stood a building for the last twenty years. The average width of the street was 47 ft. 6 in. Defendants alleged that their new building would not interfere with the comfortable use and enjoyment of the plaintiffs' premises as they were before defendants' alterations, according to the usages of ordinary persons in that locality. This the plaintiffs challenged and said the defendants' new premises would materially interfere with the use of the premises according to ordinary usages.

Mr. John Murray gave evidence in support of his case. He said he was born at No. 50 in 1851. Formerly the ground floor was a fairly well lighted floor, and they had to use artificial light before noon, but since the erection of the defendants' building it was nearly always in use. No. 50 was used as a private house and 50a as business premises. There was an appreciable deterioration in the amount of light that now came to the premises. (It was in the fire-place of the drawing-room of 50a that Byron's memoirs were burned.) The comfort and enjoyment of his private house was much affected.

Mr. A. B. Yeates, of Messrs. Sir Ernest George and Yeates, of 18, Maddox Street, an architect and surveyor, who had been in practice for twenty-two years, said in October last he was consulted by the plaintiffs in reference to the building the defendants proposed to erect. He got into communication with Mr. Harrison Townsend, the architect for the defendants, and saw a drawing showing the old and the proposed new building. The proposed new building was much higher than the old building, and would obstruct the view of the sky line from certain of plaintiffs' windows. The ground floors of 50 and 50a lost some 16 and 19 deg. of light respectively and No. 48 6 deg. The loss of degrees of light on the other floors was also considerable.

Mr. Howard Chatfeild Clarke and Sir Alexander Stenning also gave evidence in support of the plaintiffs' case.

At this point the parties arrived at a settlement, the defendants agreeing to an order restraining them from carrying their building, other than the chimney stacks and dormer windows, beyond a height from which a line, if drawn to the sill of the ground floor window of the plaintiffs' premises, would produce an angle of 47½ deg. from the ground floor windows, and not to exceed a height of 56 ft. 6 in. Defendants also agreed to pay a certain sum for costs.

The witnesses retained to give evidence for the defendants were Sir Howard Frank, of Knight, Frank, and Rutley, Hanover Square; Mr. W. Woodward, of Messrs. W. Woodward and Sons, Mr. P. E. Pilditch, Mr. C. H. Townsend, architect, and Mr. E. Keynes Purchase.

NEWS ITEMS.

An Architect's Bequests.

Mr. William Newton Dunn, aged sixty-six, of Glenfenlen, Wray Park, Reigate, and of 1 and 2, Bucklersbury, E.C., architect, who left estate valued at £108,223 (net personalty £61,576), gave £500 to his clerk, Mr. Harry Bowen, and £100 to the Tenby Cottage Hospital.

Compensation—Building Postponements.

The Building Committee of the Watford Board of Guardians have recommended that, without prejudice to the legal position of the Guardians, the sum of £25 be paid to Messrs. George Wiggs and Sons, the contractors for the new nursery at the workhouse, as compensation for the suspension of the contract, subject to the approval of the Local Government Board.

Regent Street Quadrant.

In the House of Commons on May 17, Sir H. Verney, Secretary to the Board of Agriculture, replying to Mr. Soames, said that Mr. Norman Shaw's design for Regent Street Quadrant was found to be not well suited to traders' requirements, and had to be abandoned. Other designs had since been considered, the latest one by Mr. John Murray, the architect who had designed the offices now occupied by the Commissioners of Woods. Mr. Murray's design was believed to be in accordance with the recommendations of the Committee which reported on the subject, except that the roof was slightly lower.

Cigarettes for Architects on War Service.

Mr. Maurice E. Webb, President of the Architectural Association, writes: "About 1,000 cigarettes are now required each week by the Active Service Committee of the A.A. for despatch to architects and other friends now fighting in France and the Dardanelles. One friend of the Association has for several months past been sending us 100 cigarettes weekly for this purpose. Will nine others do the same? The brands appreciated most are 'Player's Navy Cut' and 'Woodbines,' and should be sent addressed to the Hon. Secretary of the Active Service Committee, 18, Tufton Street, Westminster, S.W."

Architects and the War.

At the closing session on May 13 at Liverpool of the National Housing and Town-planning Council a scheme was discussed for finding employment for architects and surveyors thrown out of work by the war, and the following resolution was passed: "That this Conference of Local Authorities approves the proposal that a series of plans and diagrams showing in a graphic form the problems of the industrial areas of South Lancashire and North
Cheshire should be prepared in acc
with the proposal placed befo
Government Committee, and in c
assist in the work approves the fo
of a committee of representatives
local authority represented her
other representatives to be no
from the local authorities not her
sented, to act as an advisory co
in regard to the work."

The Government and School Bu

In the House of Commons, on
Mr. Austin Chamberlain called a
to the want of co-ordination in th
of different Government departme
mentioned, as as example, the
brought to bear by the Board of
tion to compel the London
Council to proceed with the buil
new schools. He pointed out h
Treasury first sent a letter to the
Council saying that capital exp
by local authorities should be re
within the narrowest possible limit
Board of Education, however, refu
mission to the County Council t
the economy which the Treasury h
cated, and he submitted that the
policies of these two departments
be harmonised. Mr. Asquith s
understood that there were contra
ning at the time when the matt
under consideration. He did no
those contracts should be put an
but thought that everything possibl
be done in the way of slowing do
that new contracts should not be
upon. He hoped all parties in the
Council would agree to take that c

COMPETITIONS.

Cottage Homes, Darwen.

The Lightbown Trustees, Darw
accepted the award of their asses
G. H. Willoughby, F.R.I.B.A.
chester, in the recent competition
local architects for the Cottage H
be erected at Sunnyhurst, Darwe
design submitted by Mr. G.
Sames, of Darwen and Blackb
been chosen for the scheme.

LIST OF COMPETITIONS

MAY 31.—LAYING-OUT GROU
UNIVERSITY OF WESTERN AUST
Designs are invited for the layin
the grounds at Crawley, Perth,
Australia. Premiums, first, 100
second, 25 guineas. Drawing
reach the Registrar, University
not later than May 31. Do
relating to the competition may b
the offices of the Agent-Gen
Western Australia, Savoy House,
W.C. For particulars see our
March 17, p. xiv.

JUNE 7.—MUNICIPAL BU
STEPNEY.—Designs are invited by
Borough Council for new M
buildings. Particulars from Mr.
Clarke, Town Clerk, 15, Great Al
Whitechapel, E.

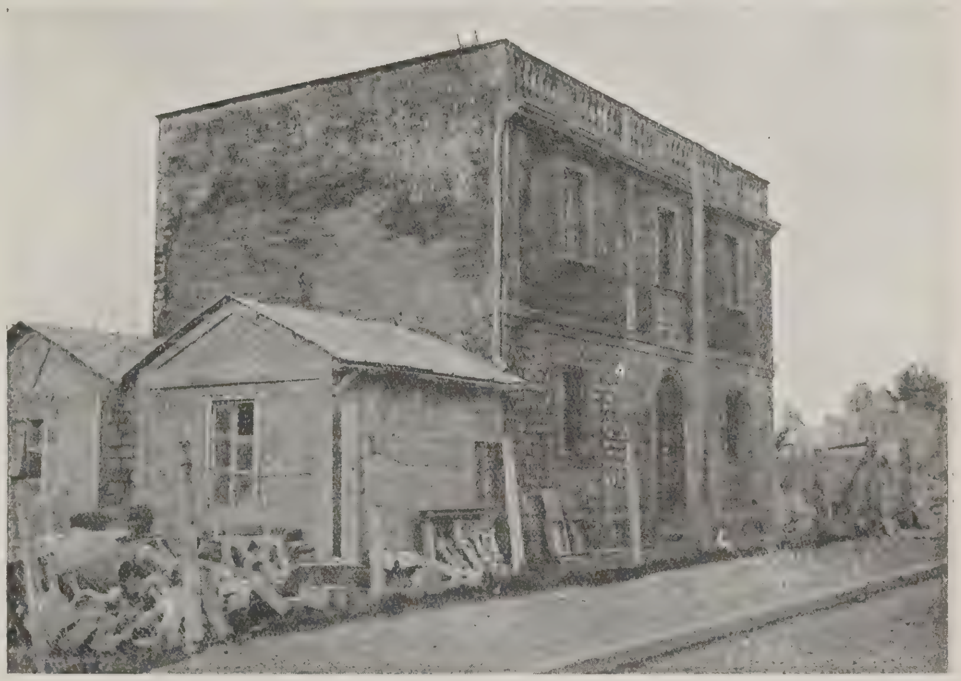
NO DATE.—SMALL HOSPITAL,
HAVEN.—Designs are invited by
Joint Hospital Committee for
hospital. Apply Mr. E. B. C
Union Hall, Whitehaven.

NO DATE.—COTTAGES, CHE
Designs for cottages on the Brom
Estate, Cheshire, are invited by
Lever Brothers. Particular of
premiums offered were given in
of March 17, p. xiv.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

FORCED CONCRETE IN THE ITALIAN EARTHQUAKE.



REINFORCED CONCRETE HOUSE, AVEZZANO: THE ONLY ONE LEFT STANDING AFTER THE EARTHQUAKE.

the experience of reinforced con-
ructures in the recent Italian earth-
we again have evidence of the suita-
f this form of construction in terri-
which are subject to earth tremors,
great superiority over any other
f building material, not excepting
ral steelwork.

vezzano, with only one exception,
uilding was destroyed by the earth-
including the interesting old Orsini
which was built in the year 1400,
hich had masonry walls 6 ft. thick.
e exception where a building with-
he shock of the earthquake was a
rey residence constructed of rein-
concrete.

experience at Avezzano was similar
at San Francisco, where the only
g in the affected area, which was
ured by the earthquake, was a rein-
concrete warehouse built on the
system.

lesson learned at San Francisco was
sible for this system of construction
xtensively adopted in the rebuilding
sina after its destruction by earth-
And it was the same with
a, where a great number of the build-
-erected after the earthquake were
this system of construction. A re-
d concrete structure, being cast as a
is a monolith without joints or con-
ns. The net-work of reinforcing
n the concrete binds the mass to-
in such a manner as to make it most
e for resistance to shocks and heavy
ons. To accomplish this result
efficiently the reinforcement must
an elementary though salient
teristic, namely, the shear or
al reinforcement of the members
must be rigidly connected to the main tensional reinforcement. Whilst it is true that designers in England need devote but little thought to the erection of earthquake-proof structures in this country, nevertheless the ability of reinforced concrete to withstand the effects of severe vibrations should commend this material to all those contemplating the erection of factory buildings, and especially of buildings intended to contain heavy moving or high speed machinery.

SINI CASTLE, AVEZZANO (BUILT A.D. 1400), DESTROYED BY THE EARTHQUAKE.

THE CONCRETE INSTITUTE.

The sixth annual general meeting of the Concrete Institute was held at Denison House, Westminster, S.W., on May 6. Professor Henry Adams, M.Inst.C.E., President, submitted the annual report and balance-sheet, which were adopted.

It was announced that as the result of the annual election of Members of Council the following had been elected:—Mr. R. H. Harry Stanger, Assoc.M.Inst.C.E., A.M.I.Mech.E., M.Iron and Steel Inst., F.C.S., M.Am.Soc.Testg.Mats.; Mr. D. B. Butler, Assoc.M.Inst.C.E., F.C.S.; Dr. J. S. Owens, B.A., M.D., Assoc.M.Inst.C.E., M.R.San.I., F.R.G.S., F.G.S.; Mr. W. G. Perkins, District Surveyor for Holborn; Mr. Ewart S. Andrews, B.Sc. (Lond.); Mr. J. Ernest Franck, A.R.I.B.A., M.R.San.I.; Mr. Lewis H. Rugg, Assoc.M.Inst.C.E., Past Chairman J.I.E.; Mr. G. C. Workman, M.S.E.; Mr. J. S. E. De Vesian, M.Inst.C.E., M.I.Mech.E.

The President presented the Institute's medal to Mr. W. Cyril Cocking (Member) for the best paper read during the Session 1913-14, namely, that entitled "Calculations and Details for Steelframe Buildings from the Draughtsman's Standpoint."

The 62nd ordinary general meeting then followed, when the adjourned discussion on Mr. Osborn C. Hills's paper entitled "The London Building Acts, with some Suggested Amendments" was resumed, the following taking part:—Mr. Ewart S. Andrews, B.Sc.; Mr. S. Bylander; Mr. W. F. Christmas; Mr. W. Cyril Cocking; Mr. E. Fiander Etchells, Assoc.M.Inst.C.E., etc.; Mr. Allan Graham, A.R.I.B.A.; Mr. Alex. C. Meston, Licentiate R.I.B.A.; Mr. Percy H. Simco; Mr. Henry J. Tingle, M.Inst.C.E.; Mr. Morgan E. Yeatman, M.A., M.Inst.C.E.

CONCRETE FOUNDATION WORK FOR A TALL BUILDING.

Concrete piers for the columns of the Equitable Building, New York, were sunk through about 45 ft. of sand and water by the pneumatic caisson process, and their foundations were carried 16 to 20 ft. deeper to solid rock by excavations made below the cutting edges through a stratum of hardpan not penetrated by the caissons. They were sealed in the upper part of the hardpan, and the latter was found to be sufficiently impervious, hard, and tough to retain the air pressure and permit excavation without sheeting or other retaining. On this work the excavation was extended below the cutting edge much farther than is usual in similar circumstances, an arrangement which expedited the work and reduced its cost.

All four sides of the 312 by 167 ft. site were enclosed by rectangular piers extending from about 10 ft. above ground-water level to the surface of the rock and serving to support the wall columns, retain the exterior soil, and exclude the ground water from the sub-basement, which was carried down 15 ft. below water line. At each corner of the site there was a 12 by 12-ft. or 12 by 13-ft. caisson, intermediate between which there were thirty-three rectangular caissons of a uniform width of 6 ft., and of lengths varying from 16 ft. 8 in. to 51 ft. 1 in., most of them being 25 ft. long. They were sunk exactly in line on each side of the site, with a nominal clearance of 3 in. between adjacent ends, and after sinking were concreted together, making a continuous wall or dam enclosing the site.

The sinking of these caissons in advance of other foundation work enabled the site to be drained so that the eighty interior piers could be built in open excavation in cofferdams or sheeted pits, thus effecting economy and convenience by the elimination of a large amount of pneumatic caisson work which would otherwise have been required.

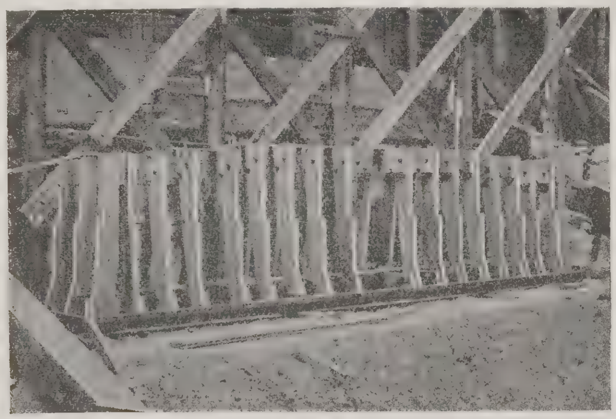
The caisson working chambers, 6 ft. high, were built of monolithic concrete continuous with the pier shafts, and were constructed wholly above the surface of the ground in removable wooden forms of the standard type generally used by the contractor. They were erected on the bottom of the preliminary general excavation at an elevation of 13 ft. above ground-water level and about 21 ft. below the curb. Vertical bents, about 6 ft. high, made of 3-in. planks, were braced together on the level surface of the ground in exactly the required positions. They were covered with lagging for the inner surface of the working chamber walls, battered and offset as required, and capped with horizontal lagging to make the bottom of the form.

The 6 by 6-in. steel angle-cutting edge was secured in position, the vertical and inclined reinforcement rods were wired to horizontal pieces, and the first 16-ft. course of the outside form was set up enclosing them. Temporary collapsible sectional steel air shafts in sections 6 ft. long were set up over holes through the de
the first course of concrete was d
around them. This was only car
to a height of about 2 ft. above th
the working chambers and allowe
for about forty-eight hours, thus
a concrete slab strong enough to c
weight of the upper portion of t
shaft from the solid walls of the
chamber without imposing an e
load on the centering.

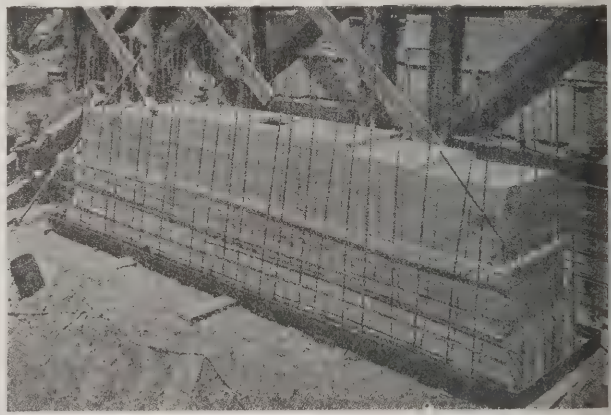
The collapsible outside form wa
of large panels, usually six in
having 2-in. dressed vertical plank
to horizontal wales about 30 i
vertically. Vertical stiffening pi
the ends of the wales formed
through which the panels were
together. The forms were braced
tiers of horizontal transverse rods
diameter with nuts bearing on heav
cal timbers engaging the waling pi

After the concrete had set at least
four hours, the outside forms w
bolted, the tie-rods disconnected f
vertical strips, and the panels
about 15 ft. and reassembled w
lower part engaging the top of t
crete. A new course was concret
so on, until the pier was built to
required height. The projecting
the transverse tie-rods were cut
the rods remained permanently e
in the piers.

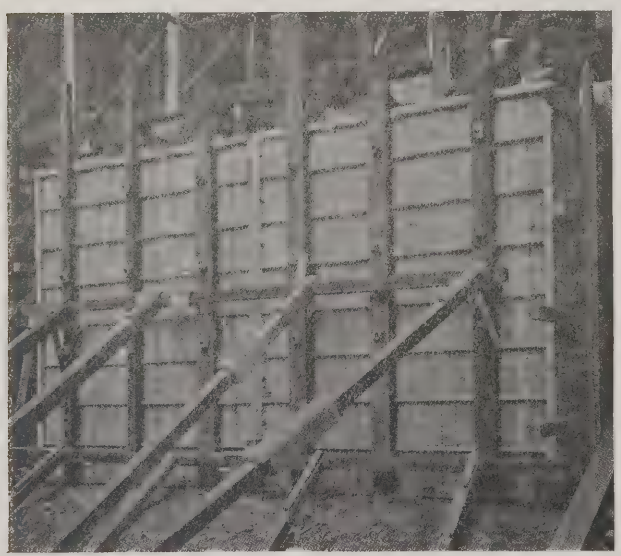
The caisson sinking was carried
tinuously under a maximum pre
about 22 lb., which permitted eig
shifts. Caisson 53, supporti



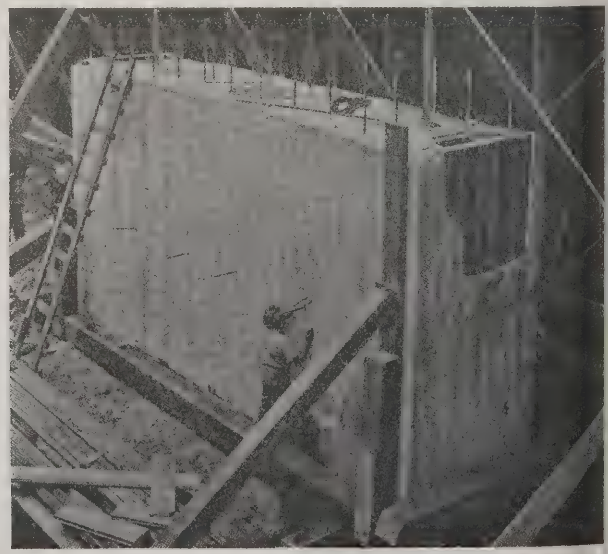
Framework for Inside Form for Working Chamber.



Inside Form: Reinforcement and Cutting Edge for Chamber.



Working Chamber Forms ready for Concrete.



Finished Section of Piers and Working Chamber.

CONCRETE FOUNDATION PIERS OF EQUITABLE BUILDING, NEW YORK.

on the Nassau Street front of the , was sunk through 45 ft. of sand etration of about 6 in. in the hardere it remained stationary, and the edge was thoroughly sealed with astered all around in the usual Most of the other caissons were ldled with clay, but in a few inconcrete was used instead.

the cutting edge the excavation sson 53 was carried down 18 ft. the hardpan to the surface of the nich was here hard and sound and nately level. The hardpan was exin benches by the use of Ingersolland McKiernan-Terry pneumatic ills, making transverse rows of ertical holes about 12 in. apart, and ep, spaced about 2 ft. back from of the bench. These enabled the to be broken off without the use explosives, after which it was if necessary into pieces that were in steel buckets through the two ke air locks.

caissons involved about 12,000 yd. vation and the same amount of , and the interior piers involved ,000 yd. of excavation and of con- The 1:2½:5 concrete was made nnsylvania Portland cement mixed some and Smith machines, hoisted able towers, and delivered to the hrough chutes on the Lakewood

working chambers and air shafts lled through concrete locks that the concrete to be deposited much pidly than could have been done by passing through the regular matecks. These locks consisted of steel of about 1-yd. capacity, set in the rovided for the upper doors of the air-locks. The lower door of the as kept permanently open, and the air pressure here was retained by tight top and bottom doors in the The lower door covered the entire the bottom of the hopper, and was nded by a chain controlled from the the hopper, outside. Both doors downward in the usual manner, and rovided with gaskets.

the hopper was empty and its loor was closed, the bottom door uled up into closed position by its and the air-pressure being exfrom the hopper permitted the loor to be opened while the lower as held firmly in position by the aced caisson pressure below it. The was then filled with concrete, the door closed. and air-pressure d to the hopper. This pressure, r with the weight of the concrete, overcame the pressure on the under of the lower door, and caused the open and automatically discharged crete through the air shaft. The loor was then pulled up from the the operations repeated, and so on. imum of fifteen hoppers per hour us delivered into the caisson.

cellar excavation extended 50 ft. he curb, and involved extensive bracing, reaching from Broadway sau Street and from Pine to Cedar The side pressures were very wing to the unstable character of und and the superimposed weights ral high buildings whose foundaere only level with the tops of the m caissons. The work was done damage to adjacent skyscrapers, h the failure of any of the braces ave ended in a disastrous collapse. . Burnham and Co. were the archind Daniel E. Moran was consulting r.

"THE STABILITY OF QUAY WALLS ON EARTH FOUNDATIONS."*

BY F. E. WENTWORTH-SHEILDS, M.INST.C.E.

In spite of the large amount of experience which has been gained in the construction of quay walls, it is still one of the most difficult problems in engineering to design a wall on an earth foundation with confidence that it will be stable when completed. A warehouse or a bridge can now be designed, not only with the assurance that it will bear its load, but also with a knowledge of its factor of safety sufficiently accurate to satisfy the designer that material has not been wasted. But the same can certainly not be said of a retaining wall on a soft bottom—at all events not of a wall, say, 40 to 80 ft. high, such as is commonly needed to sustain the quays of a modern dock. Even if the designer of such a wall is assured that it will stand he cannot with any confidence tell you what factor of safety it possesses. The cause of his uncertainty is, of course, the difficulty of ascertaining the actual lateral pressure imposed by an earth backing and the actual resistance offered by an earth foundation. His difficulties are thus different from those of the engineer who has to design large masonry dams. The latter structures are invariably placed on a foundation of solid rock, and the designers' chief care is that the stresses in the masonry of which the dam is composed shall not exceed a safe limit. The dock engineer, on the other hand, has to be anxious that his wall shall not move as a whole on the comparatively soft material on which such structures have in general to be placed. The object of this paper is to consider the uncertainties and difficulties which the designer of a quay wall has to face, and, if possible, to ascertain how far calculations can assist him, and how far he must trust to judgment based on experience. It is also intended to urge upon this Institute the importance of collecting information upon this subject in the hopes that by degrees these difficulties and uncertainties may be cleared away.

A retaining wall may fail as a whole in two ways: (1) By sliding forward on its base and (2) by overturning. It may be said at once that as regards quay walls, at least, the former mode of failure (by sliding forward, is by far the more common.

The conditions of stability in a "gravity" wall may be summarised thus: The forces tending to thrust the wall outwards (generally the lateral pressure of the earth backing) must be at least equalled by the forces tending to restrain it or thrust it inwards. The latter forces are generally the pressure of the water under it in front of it, the resistance of the earth in front of its toe, and the horizontal resistance to shear (or the friction) at the base of the wall. If these horizontal forces balance the wall cannot slide forward. The resultant of the outward forces, however, is almost always at a higher level than the resultant of the inward forces. Thus, a couple is formed tending to overturn the wall about its toe. This couple induces a counter-couple tending to keep it upright. The forces forming this counter-couple consist, on the one hand, of the weight of the wall acting vertically downwards, together with the weight of any earth or water which may lie above the base of the wall and on the other hand the upward resistance of the earth under that base.

If the upward resistance of the earth beneath the wall is capable of forming with the downward weights a couple at least equal to the overturning couple the wall cannot overturn. In order that the earth beneath the wall shall be capable of forming this righting couple two things are necessary. It is obvious that the centre of the earth's resistance must be forward of the centre of gravity of the wall and of other loads on the base, and generally it is forward also of the midpoint of the base of the wall. Consequently the intensity of upward resistance is generally greatest at the toe and least at the heel. To preserve stability the resistance at the toe must not be greater than the maximum which the earth is capable of offering, and that at the heel must not be less than the pressure induced by the tendency of the earth to rise at this point.

Calculations for the stability of quay walls cannot in our present state be always relied upon, and failures on the one hand and waste of material on the other are liable to occur even to the most careful and experienced designer. This, however, is not saying that such calculations should be entirely ignored. On the contrary, they are most useful in suggesting means for increasing in the most economical manner the stability of weak designs.

The author then dealt with some devices which have been used for increasing the stability of quay walls, namely: (1) Admission of water into dock, (2) sinking foundations deeper, (3) building buttress walls in front on main wall, (4) making wall wider, (5) removing a portion of the backing, (6) improving backing, (7) sloping base of wall, (8) driving piles under base, (9) anchor ties, (10) lengthening toe.

In conclusion it may be said that owing to the difficulty and expense of making experiments on large walls it is the more important that careful records should be kept and published of both successes and failures in this class of structure. Such records should include not only dimensions of the wall, and careful notes as to the nature of the materials employed, but also the calculations for stability, with the formulae used, the assumptions made for the values of constants in those formulae, and the reasons for such assumptions.

It is, of course, unlikely that it will ever be possible to design large quay walls purely from rules and without some measure of judgment, but if a body of information as suggested above could be collected and analysed it would help and clear away some of the uncertainties which now beset that interesting though troublesome problem, viz., the economical design of high quay walls on earth foundations.

Aberdeen Monuments for France.

A writer in an Aberdeen newspaper states that since the war there has been a considerable increase in the orders received from France for granite monuments. Germany used to do the bulk of the granite work for France.

Mont d'Or Tunnel Opened.

Mont d'Or Tunnel and the Frasne-Vallorbe line, of which it forms a part, were opened for traffic on May 15, when the first international train between Paris and Switzerland passed through. The new line shortens the distance between Paris and Lausanne by about eleven miles, and the time of the journey between Paris and Milan by about half an hour. Besides the Mont d'Or Tunnel, which is nearly 3¾ miles long, and almost all in French territory, there are four shorter tunnels. Owing to difficulties from waterbursts, the original estimate of the cost of construction —£1,480,000—has been greatly exceeded.

---

*Extracts from a paper read before the Concrete Institute.

CROYDON SWIMMING BATHS.

Alderman H. Keatley Moore, B.A., B.Mus., J.P., ex-Mayor of Croydon, describing in "Kahncrete Engineering" the Croydon Swimming Baths, of which an interior view is here given, states that instructions were issued to the Borough Engineer, Mr. George F. Carter, M.Inst.C.E., to prepare plans for the new swimming bath and entertainment hall, Croydon.

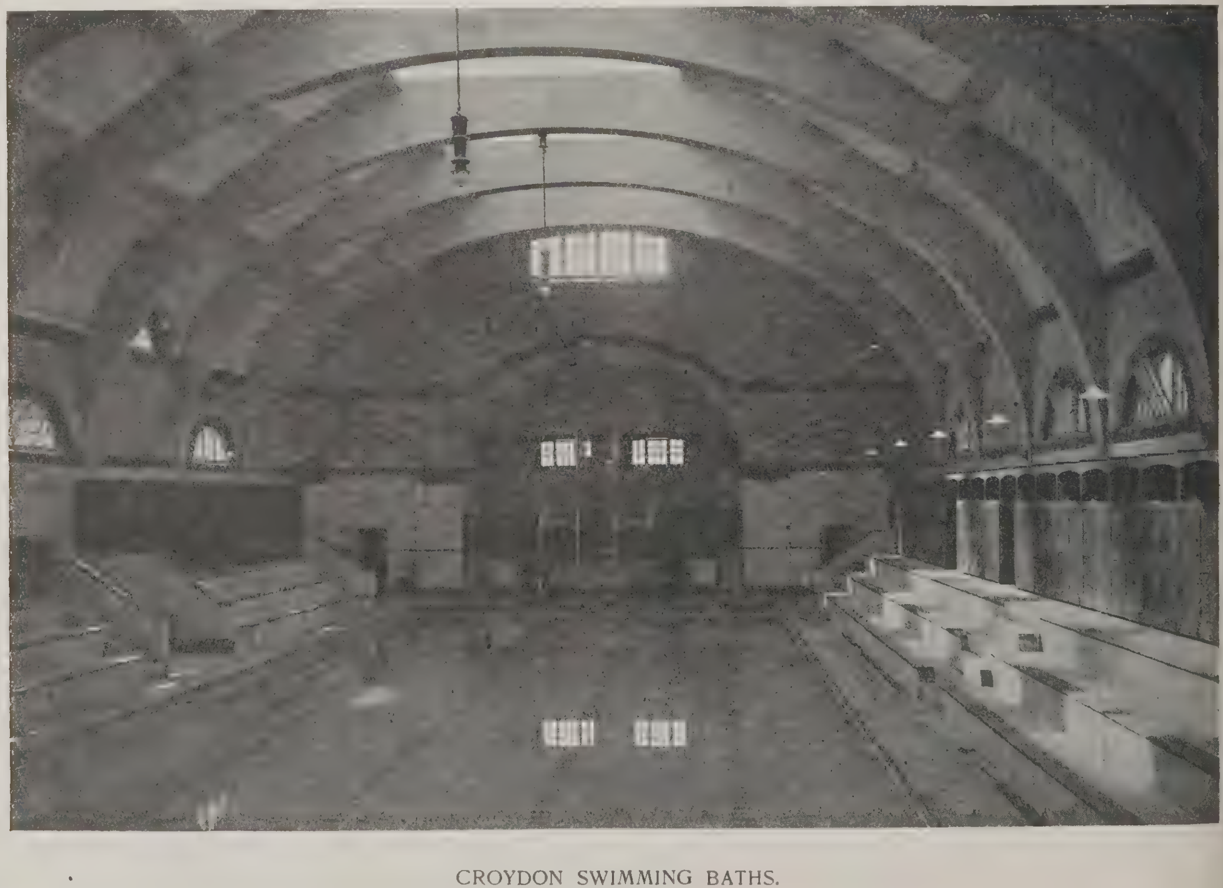
From his previous experience at the Croydon Public Baths, Mr. Carter came to the conclusion that in the new structure it would be advisable to eliminate if possible the heavy establishment charges entailed in repainting and repairing steel roof trusses, which are constantly liable to be affected by the steam and moisture necessarily found in baths. He decided to use a material for the construction which would prove permanent, and which would be subject to the least deterioration. A careful inspection was made of the Hammersmith Swimming Baths, where the roof is of reinforced concrete on the Kahn system. This building proved of considerable interest to Mr. Carter on account of the peculiar design of the circular ribs which support the roof. A design like that of the Hammersmith Public Baths had never before been attempted in reinforced concrete. It consists of circular arched ribs of 54 ft. span carried on stanchions about 21 ft. above the ground level without the use of tie rods or external buttresses. Being so much impressed by the appearance of these baths, Mr. Carter recommended that the reinforced concrete work at the Croydon Baths should be entrusted to The Trussed Concrete Steel Co. Ltd., and his recommendations were adopted by the Corporation. When the Local Government Board were asked to sanction a loan for the construction of the Croydon Baths they withheld sanction for that portion of the cost represented by the reinforced concrete roof until such time as the ribs had been constructed at the Corporation's risk and tested by an independent expert in the presence of one of their inspectors. In spite of this difficulty the design was carried out, and on completion was tested by Messrs. David Kirkaldy and Sons in the presence of Mr. A. G. Malet, M.Inst.C.E., of the Local Government Board. The test proved that the design was theoretically sound, and the Local Government Board raised no further objection to the sanctioning of the loan.

The general nature of the construction of the Croydon Baths is shown by the accompanying illustration. The main hall, in which the swimming bath is located, is 120 ft. long and 61 ft. 3 in. wide in the clear. The span of the arches is about as 7 to 6 compared with that of the Hammersmith roof; and at the time of building the Croydon bath had the largest unsupported arched roof of this construction. Hence the anxiety of the Local Government Board. The arched ribs span across this width and are carried on reinforced concrete columns 15 in. wide by 24 in. deep without the use of tie rods or external buttresses.

The reinforcement throughout consists of Kahn trussed bars, which were placed in such a manner as to take up the tensile stresses due to the bending moments at various parts of the structure.

The total weight of each arched rib is approximately 40 tons, the portion above the springing weighing 28 tons 3 cwt. The purlins weigh 4 tons 6 cwt., and each section of the centre lantern-light weighs 2 tons 6 cwt. The whole of the work in each rib was carried out in one continuous operation from both sides simultaneously, thereby obviating the risk of any joints occurring in the concrete, and also balancing the weight on the centering evenly, an important consideration when dealing with such extensive loads.
centering was designed by the Tr
Concrete Steel Company in such a
that it could be removed gradually
out throwing on to the arched ribs
for which the arches had not
designed. The centering was s
fifty-six days after the concrete
poured, and the test was applied to t
the ribs in the presence of Mr. Mal
the Local Government Board, four
after the removal of the centering.
its own weight it was found that eac
settled one-sixteenth of an inch upo
removal of the centering, the mea
ment being taken at the centre o
span. For the loading test platforms
suspended from six points along eac
The first test consisted of uniform
being placed upon all the platforms
to produce the result of uniformly lo
the arched ribs. A second test was c
out to produce the effect of wind pr
on one side of the structure by loadir
platforms only on that side of the
of the span. The maximum defle
obtained were 0.04 in. in the one cas
0.02 in the other case.

With regard to the general arrang
of the interior of the building, thi
such that the main hall could be us
an assembly room for entertainment
political meetings. The dressing bo
the sides of the swimming bath are
collapsible so that they can be rer
when desired. The sides of the bat
by shallow terraces, which serve as
of seats for spectators when require
removable maple floor is constructe
the swimming bath. It is estimate
over 1,000 people can witness a swin
entertainment, and that when the
ming bath is covered over in the
time the hall has a seating capaci
1,500 people, although at certain p
gatherings there have been crowds of
persons present. The total cost
work was about £8,500.



CROYDON SWIMMING BATHS.

IPLES OF STRUCTURAL DESIGN.

ent " writes : " With respect to the article on structural
your issue for May 12, may I ask the following
:
4.—The diagram of first floor shows two letter D's;
ot one of them be E?
d Ends.—Supposing that the column in question had
continuous, but had a joint at ground floor level, would
rect to consider the stanchion between ground floor
first floor level as ' one end fixed and one end hinged,'
by E. F. Etchells, A.M.I.M.E., in the Journal of the
of May 10, 1913?
ormula for Working Stress in Tons per Square Inch.
umn of cast iron it reads: Both ends fixed; both ends
ould not this be: One end fixed; one end free?
5.—The B.S.B. is figured ' 12 by 8 ' and ' 10 by
ould not this be one scantling throughout? Also,
ot the joint be shown in the B.S.B.? Is it good con-
in a joint where there is one plate less on each flange
ue the lower flange plates and bolt them to upper
The article reads, ' When the joint is near a point
the design of the stanchion is assumed to be a hinged
plates are probably theoretically unnecessary.' These
presume, are the cover plates; and if so would not this
hether the joint were hinged or not?
, ' Midway between the supports of the stanchion (head
?) and at a fixed end theoretically it should be necessary
mit the full strength of the plates across the joint.'
a fixed end? This paragraph does not seem clear, and a
xplanation would be valued."
ng to the letter of " Student ":
.—This is correctly drawn. There is no girder E at
floor and the D girder (B50) consists of two joists con-
t different points.
Ends.—A mean value between fixed and free ends is
ken. In the Act that mean value is attributed to the
of " one end fixed and one end free."
ormula.—I regret that this very obvious misprint has
notice.
—The joist is continous, and the lettering " 12 by 8 "
e deleted.
.—The ends of plates no longer necessary may be, and
, used as covers; but rivets are preferable to bolts and
es are desirable.
ns are designed to resist bending as well as direct com-
. At a theoretically fixed end only sufficient section to
mpression is required, and in many cases all the flange
ight, theoretically, be dispensed with there. But mid-
ween the supports, whether main or intermediate, and
presumed to be fixed, the section must be capable of
its maximum resistance to bending, and any loss of
lue to a joint must be replaced in the covers.

PERCY J. WALDRAM.

CT OF WAR TRAFFIC ON ROADS.

Hon. Arthur Stanley, M.P., presided at the annual
of the Roads Improvement Association at the
on of Civil Engineers, Westminster. The annual
n the work of the Society for the past year stated:
gh its activities will be somewhat restricted during the
rything necessary is being done to maintain the organi-
nd machinery of the Association in an efficient state.
very essential when it is borne in mind that owing to
ormal circumstances now being experienced—the un-
unfavourable weather, military activities, shortage of
etc.—the roads generally are deteriorating. It is conse-
necessary that the Association should carefully watch
ailing economic conditions and seek and urge remedies
ght time.
obert Todd, Chairman of the Council of the Association,
ng the adoption of the report, said that during the
war there had been a lot of traffic over roads which for-
arried little traffic—traffic now of the very heaviest
-and it was very difficult to repair them because they
t be closed for repairs. But he believed that the Road
vas hoarding up funds which, when the war was over,
e let loose upon these.
oynson-Hicks, M.P. (President of the Royal Automobile
ion), in seconding the adoption of the report, said the
on of London traffic was so great that nothing short
mplete alteration in the road system would bring the
ck to what they were meant to be—the primary organisa-
the movement of traffic throughout the country.

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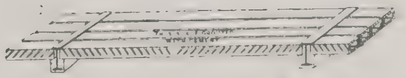

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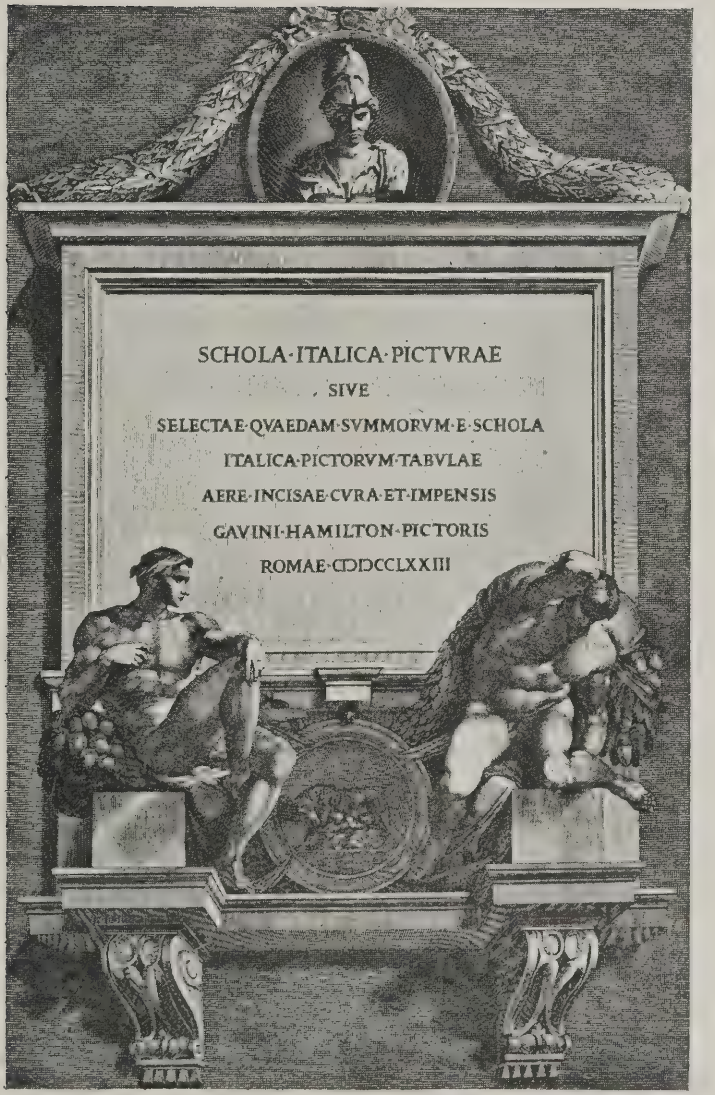
JOURNAL.

Wednesday, June 2, 1915. Volume XLI. No. 1065.



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THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 2, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME. 41. No. 1065

EDITORIAL.

MR. ASQUITH'S telegram to Signor Salandra, the Italian Premier, congratulating him on Italy's plunge into the great struggle against Teutonic barbarism, includes a passage that rises superior to mere diplomatic compliment. "The Italian people," it runs, "have always stood for freedom, and for the great ideals of humanity, and to-day we rejoice in their decision to participate in the struggle which the nations upholding these ideals are waging to preserve them from utter destruction." Clearly this is no mere coinage of courtesy. It rings true as a simple and restrained statement of fact, and seems to recognise implicitly that the world's debt to Italy is so profound as to beggar expression. But while, as Mr. Asquith says, we are all "proud that Italy has joined the Allies," the thrill is mingled with an intense feeling of regret that the home of all the arts should be exposed, however slightly and remotely, to such risks as those which have materialised so disastrously at Louvain and Reims.

* * * *

Mr. Asquith's quiet but cordial and sincere reference to the Italian love of great ideals reads like a faint echo of the tribute paid long ago by one who was among the first to open the eyes of England to the glories of Italy. This was the Rev. John Chetwode Eustace, whose "Classical Tour Through Italy" passed through many editions. He wrote, towards the end of his third volume: "The Italians have been our instructors in the sciences, and our masters in the arts; their country is the garden, the glory of Europe: it is an inheritance derived from the noblest race that ever acted a part on this globe: its history, its geography, its literature, are connected with every idea, every feeling, of the liberal and the enlightened individual, and are interwoven with the records of every civilised nation." Mr. Eustace was an enthusiastic admirer of everything Italian, and on the people's love of art has the rather quaint observation that "they prefer Minerva to Bacchus, and take less pleasure in regaling themselves on turtle, venison, champagne, and burgundy, than in contemplating pictures, statues, marble halls, and pillared porticoes." Nature seems to have marked them out as the natural antagonists of the Huns, who, notwithstanding their denials and protestations, have given the most convincing proofs that they certainly prefer Bacchus to Minerva.

* * * *

Immediately after Italy's declaration of war, the very first act of the enemy was a futile air attack on Venice, the two chief objects of it being the arsenal and the gasworks. Very little damage was done; and it is reassuring to learn that the Italians are taking extraordinary measures for the preservation of the public buildings and the art treasures of the city. As the arsenal is only half a mile eastward of San Marco, one would gladly grasp at the notion that the Austrian airmen spared it for other reasons than inability at it. For, in spite of the incendiary bombs dropped upon Venice, we are very willing to that, unlike their German allies, the Austrians wholly destitute of all regard for art. St. Mark' must feel, is a world's heritage, and to injure it be to inflict moral and material damage upon civilised nation—from which category they are not utterly excluded. Whether they will conti deserve this certificate of sanity depends up extent to which they have been debauched villainous example of the Germans, who, we m pretty sure, would be only too delighted to Venice in ruins, if they could get the chance.

* * * *

Of St. Mark's it is superfluous to speak. Ru the noblest of architectural monographs—and th be said of "The Stones of Venice," in spite Ruskinesque perversities—has said about it there is to say, and, thanks to his eloquence, most familiar building in Europe. Every knows it as a museum of sculptured capitals, screens, which between them represent almos period of architectural decoration; a good dea sculpture dating from the sixth century, an earlier. Much of the carving was not intended Mark's, but has been "conveyed" from other bu mostly in the East. The four colossal bronze in the gallery at the top of the atrium were p taken from some Græco-Roman triumphal q and brought to Venice in 1204, after the conc Constantinople by Enrico Dandolo. Tintorett hand in the decorations, and his work, as well as Paolo Veronese, to to be seen in the adjace intensely interesting Palace of the Doges. churches of Venice are worth all the ingenio that the most "super-subtle Venetians" can t their preservation; and most of them are not beautiful as buildings, but, like St. Mark's, are t houses of sculpture and painting. Titian's "M di Casa Pesaro" is in the Frari, and he has an " ciation" in San Salvatore, and some smaller p in Santa Maria della Salute: while Veronese again in San Sabastiano. But a list of the im pictures contained in the churches of Venice w a large catalogue. Palladio rebuilt the ancient of S. Pietro di Castello; and Sansovino is credit much work in the city besides the magnificent of St. Mark.

* * * *

If hostile airmen succeed in destroying the the military significance of the calamity woul outweighed by the loss of a building that is architectural and more historical interest. D the twenty-first book of his "Inferno" (*absit* describes the various operations by which his poraries produced the munitions of war in this

as an elaborately wrought entrance gateway, in
f which stand four ancient marble lions that
rought as trophies from the Piræus in 1687.
, which, as Austria's most thriving port, is more
ely to receive some delicate attentions from the
fleet, holds but little of architectural interest,
its Byzantine Cathedral of S. Giusto, and the
triumphal arch in the Piazzetta of Riccardo;
town hall, the communal theatre, built by Selva
, the Armonia, the Nautical Academy, and the
Lazaretto are all buildings that deserve to
bombardment.

* * * *

little material damage was done by the
n raid on Southend last Wednesday night, but
men were killed, and a child was very seriously
Small fires that were caused were promptly
sed. Very wisely, local authorities all over the
n are issuing instructions as to what should be
case of aërial attack, and respirators are being
distributed—among the police and in schools,
tance. Asphyxiation and fire are the only
against which effectual precautions can be
ınd with respect to the latter contingency, we
to note that drafts from the London Volunteer
have been appointed to assist the London
Council Fire Brigade to cope with fires that
caused by hostile aircraft that may possibly
ondon. Other cities will no doubt follow this
ıt example, which commends itself as a means
ely of meeting a temporary emergency, but of
ıg knowledge that will be permanently useful.
lunteers are to be regularly trained for fire-
the headquarters of the Fire Brigade, and so
n auxiliary to the regular forces of fire-preven-
uld be maintained in perpetuity. It is not
hat the Volunteer forces will be disbanded
ately on the cessation of the war that has
them into being; and fire-prevention is one of
ral services that will help to justify their con-
xistence. Architects who, having joined these
om patriotic motives, remain in them for the
the physical exercise that they have already
be so beneficial a corrective of the sedentary
uld be glad of the opportunity they afford of
fire-prevention in its more practical aspects,
experience should give them a more vivid
ion of their duties with respect to fire-preven-
fire-extinction, and a closer acquaintance with
ns of securing those objects.

* * * *

respect to the poisonous gases with which the
s have aggravated the horrors of war, it is
that revolving fans would be exceedingly
or the dispersal of fumes from bombs. Dr.
oley, of Newcastle-upon-Tyne, suggests that
an-blowers, to be worked by hand, should be
t intervals of three or four yards in the trenches
near enough to the enemy to be in danger
s. These, he says, should be connected with
ing through the base of the earthwork in front
ench, and he suggests that "large, round iron
rner spouting, such as is used to carry rain
use-roofs, would be exactly suitable." He adds
he number of blowers were equal to the num-
as cylinders used by the enemy, the blowers,
gorously worked, would deliver a volume of air
ter than the volume of gas, which would be
d in the surrounding atmosphere.

* * * *

as to be expected, Mr. Reginald Blomfield's
n of the report of the Committee of the
l Gallery Trustees on the Chantrey Bequest
voked vigorous retort. "Art-lover," who
t have taken shelter under a pseudonym, advances the excellent argument that the Trustees of the National Gallery should have the right to accept or refuse additions to the collection entrusted to their keeping, and that in the case of the Chantrey purchases they are precluded from exercising that right. This is a very palpable hit, and puts very clearly the real point at issue, which is not whether the Gallery Trustees or the Royal Academicians are the better judges of works of art, but whether or not the former shall willy-nilly continue to be involved in any ill-consequences—and it is represented in the Committee's report that there is a long chain of them—created by the latter. Hence it is very reasonably claimed by another champion of the Trustees that in issuing their report they are simply taking steps to assert their own authority. Looking at the matter from this point of view, one can see clearly enough that the Trustees have a rather substantial grievance. That they will be relieved of it in the way that they themselves suggest —by getting the bequest into their own hands—is not very probable. Apart from any legal difficulties that might oppose the transference, it would be impolitic to risk such a bitter standing feud with the Royal Academy as would almost certainly arise from so humiliating an ablation. Although coalition is for the moment a popular expedient, one dare not suggest its application to the present case.

* * * *

Change of directors does not necessarily involve change of direction, although it may sensibly affect the speed and amenities of travelling. With regard to the reconstructed Cabinet and its possible influence on building interests very little can be inferred from the substitution of Mr. Walter Long for Mr. H. Samuel at the Local Government Board, of Lord Selborne for Lord Lucas at the Board of Agriculture, or of Mr. Harcourt for Lord Emmott at the Office of Works. Mr. Long is no stranger to the L.G.B., of which he was Parliamentary Secretary from 1886 to 1892, and President from 1900 to 1905. As the owner of some 15,500 acres of land, he has a keen personal interest in the rural housing question, and is unlikely to favour the undue stringency of by-laws that has rendered this particular problem more difficult of solution than it need be. He was born at Bath in 1854, educated at Harrow and at Christ Church, Oxford, entered Parliament as Conservative member for North Wilts in 1880, and has been President of the Board of Agriculture as well as of the L.G.B. Lord Selborne has been Under-Secretary for the Colonies, First Lord of the Admiralty, and High Commissioner in South Africa. Mr. Harcourt has been First Commissioner of Works and Secretary for the Colonies, and is an Ecclesiastical Commissioner. Lord Selborne's attention should promptly be drawn to the unholy traffic in shilling working drawings and penny specifications in which the Board of Agriculture has been induced to engage by the committee on rural cottages.

* * * *

In the long and able speech in which he opened the discussion on the annual report of the R.I.B.A., Mr. William Woodward called attention to certain features of the report of the committee appointed by the Board of Agriculture and Fisheries to consider and advise on rural cottages. He referred specifically to the issue by the Board of cheap working drawings and specifications, and declared that the effect would be "to take a very large amount of work out of the hands of provincial architects." "I think," he said, "that steps should be taken to put an end to that sort of thing." Upon this point, as our readers are aware, we are in entire agreement with Mr. Woodward, and we are glad that his reference to the matter elicited from the President the assurance that the matter has been taken up by the Institute with vigour and determination.

HERE AND THERE.

On a hot afternoon just before Whitsun I was one of a crowd of well-meaning persons assembled in a City terminus hotel to consider, in those very uninspiring surroundings, the formation of a new Association. The paramount interest at the moment was spelt out for us in big letters on the newspaper placards, telling of great events abroad, of momentous Cabinet changes at home. Realising the importance of such matters, we ought properly to have been intent on the speeding up of munitions and the supply of men for the tremendous prosecution of the War. But the Association, duly constituted by a show of hands at the close of the meeting, was concerned with the pacific problem of the improvement of industrial design. I have its name before me—The Design and Industries Association. Frankly I must confess that I found it difficult to work up enthusiasm for the enterprise, but it is a fact that we cannot live by War alone, and if only by way of relieving the tension, we may be allowed to turn to the thing that doesn't matter. My own feelings about this Association are mixed, both friendly and hostile, and in so far as they are hostile I might engage on that destructive criticism which is so facile and, for the most part, so profitless. But a nicely printed pamphlet warns me that "the Press critic . . . . probably does not realise that he may be killing potential English industries by a hasty word," and Professor Lethaby was there to urge us to fraternise and to set aside all bitterness, so it is best for me to assume the rôle of the not unkindly recorder who cannot, however, cry "Allah!" throughout.

* * * *

The aims of the Association, whose moving spirits are Mr. Cecil Brewer, Mr. Ambrose Heal, Mr. Ernest Jackson, Mr. J. H. Mason, Mr. Harry Peach, Mr. Hamilton Smith, and Mr. Harold Stabler, are to draw together the manufacturer, the designer, the distributor, and the critic, so as to give an impetus to the improvement of industrial design, and at the same time to bring about an improvement in public taste. The two things that seem to rankle in the promoters' breasts are (1) that it was we in this country who originated the Arts and Crafts movement, yet it was Germany who appropriated our talent, developed our ideas, and gained kudos thereby; and (2) that reversion to the antique and the repetition of old models is a dead-alive business from top to bottom, and utterly adverse to any advance in design. Here is the case set out: "We ought to obtain far greater results from our own originality and initiative than we have done in the past. We must learn to see the value of our own ideas before they are reflected back on us from the Continent. English designers, for example, set the type of furniture which, especially in hotel furnishings, has spread all over Europe. The English book, from the letterpress to the binding, has very greatly influenced foreign productions. Pattern designing of all kinds for textiles and wallpapers has also been remarkably developed here, and the English fashion in design has led the world during the last generation. . . . It has been extremely unfortunate that the Arts and Crafts movement in England coincided in time with the violent fashion for antiques of every kind. Everyone with any pretensions to taste has tried to find Chippendale chairs, 'Adam' bookcases, and other old furnishings. And this has resulted in a sort of curiosity shop ideal which has gone very far towards destroying the higher forms of invention in our household requirements. . . . The social results of 'collecting old furniture' of course were not foreseen, but they certainly inflicted great injury on an essentially noble craft. . . . Now that we know all about it, there is something pawnshoppy about gatherings
auctions, and the highly misdirected skill of the in
has often made it next to impossible for eve
expert to tell the difference between an origina
and a copy."

* * * *

For my own part I would say that the Ge
are welcome to what they got out of our Ar
Crafts. I have seen many of their production
at the moment of writing I recall a Swiss
equipped with those furnishings which are re
to above. Undoubtedly there was a certain
efficiency about the chairs and tables, the el
light fittings and the tea-trays. They were wel
and smoothly finished, and, spic and span
looked gay enough. But piece by piece I wou
have had them in exchange for equivalent mo
the late eighteenth century in England.
the thread of that period which we should
picked up, which we should pick up to-day. U
tionably there was a general good taste in the
of the period, and I would advocate a return
scholarly knowledge which produced it. The
of the Arts and Crafts is in its glorification
individual. We want instead communism
arts, that sort of communism which is tra
under whose quiet direction a man seeks
to follow his model, instead of being intent on
ing how clever he himself can be—a piece of e
which produced in another sphere that mis
type of architecture which we will call
Classic."

UBI

THE PLATES.

Designs for Replanning of Central Bradf

These are dealt with in the review of the com
on the next page.

Detail of Eighteenth-Century Overmant

This dates from about the year 1760. The
ment shows such typical features of the
Renaissance as the floral drop and the bo
and-tongue moulding, and in addition there
running Greek fret and the band of pierced g
ornament at the bottom, indicative of the c
in classical taste which were brought about t
the end of the eighteenth century.

Terrace of Houses, Richmond Hill.

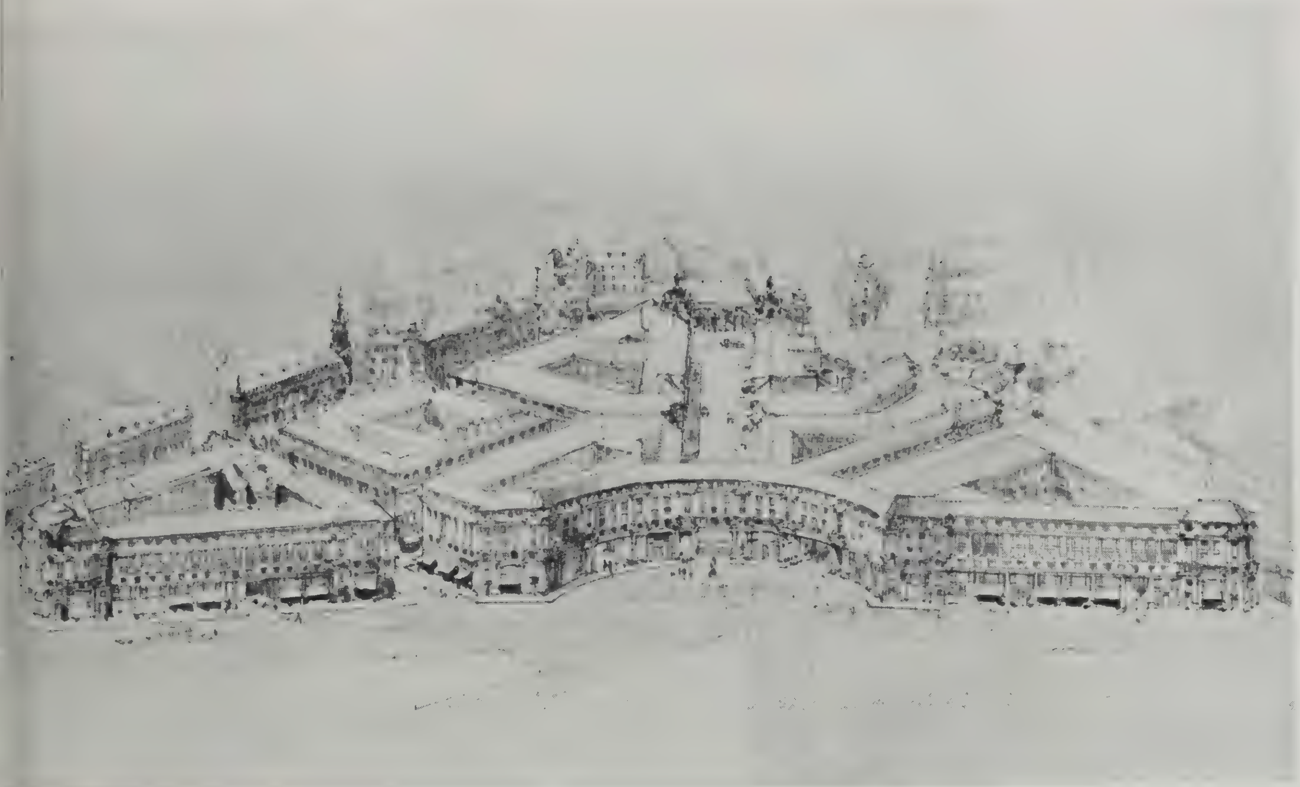
This terrace is on the top of Richmond H
commands a view over the magnificent str
river that extends towards Twickenham.
houses are of three different types, and make
pleasing composition. The large bowed ve
embracing two floors is the main interest
centre house. Verandahs and balconies
particularly attractive feature of Late Ge
houses. They are of innumerable p
and forms, there being three distinct t
the present illustration.

A Monument to Lord Roberts.

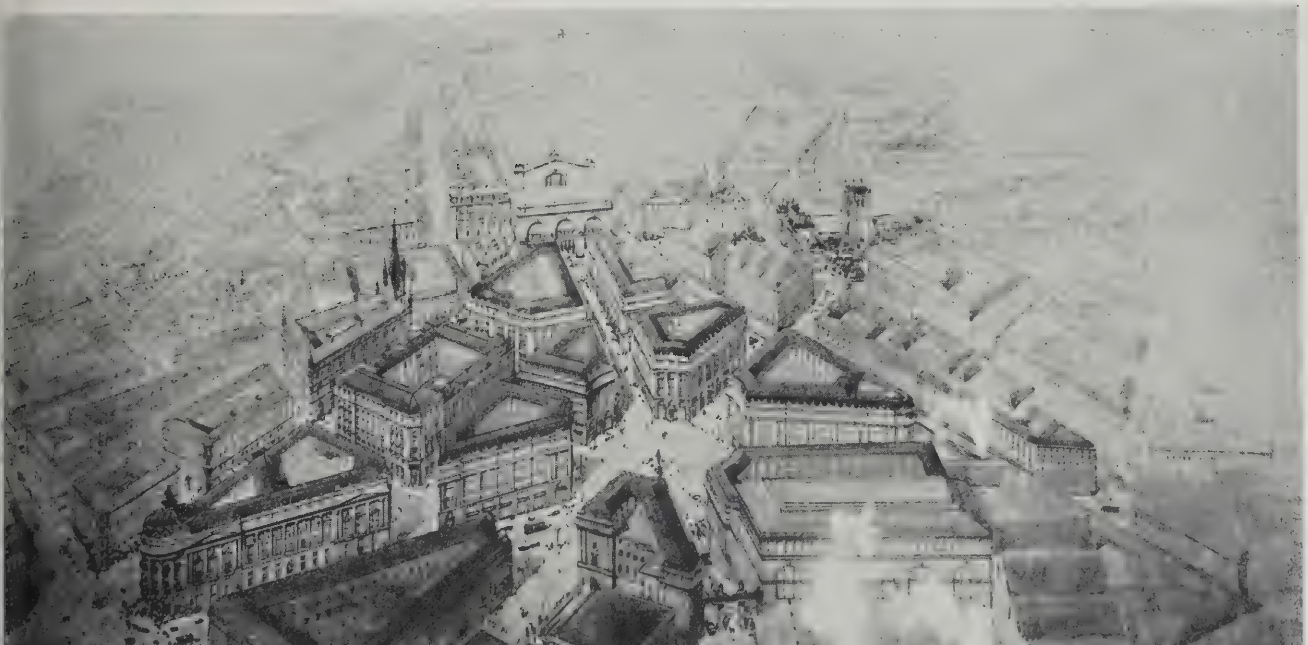
This was the subject set as one of the
R.I.B.A. Problems in Design. The schem
trated, by Mr. Alfred B. B. Jopling, of the Li
School of Architecture, is one of the a
designs. As will be seen from the plan—an
able example of a drawing of its kind—the
ment is set on a broad platform which is app
by flights of steps and extends at the rear
circular form.

Perregaux Monument in Père Lachais

The plate shows the side elevation, secti
plan of this monument, of which the front e
and cross-section were given last week. B
was the architect.



First-Premiated Design. Gibson, Skipwith and Gordon, Architects.


THE CITY OF BRADFORD CENTRAL AREA PERSPECTIVE VIEW

Second-Premiated Design. Patrick Abercrombie and Lionel B. Eudden, Architects.

CURRENT ARCHITECTURE (SERIES II.). XXIV.—COMPETITIVE DESIGNS FOR REPLANNING THE CENTRAL AREA OF THE CITY OF BRADFORD.

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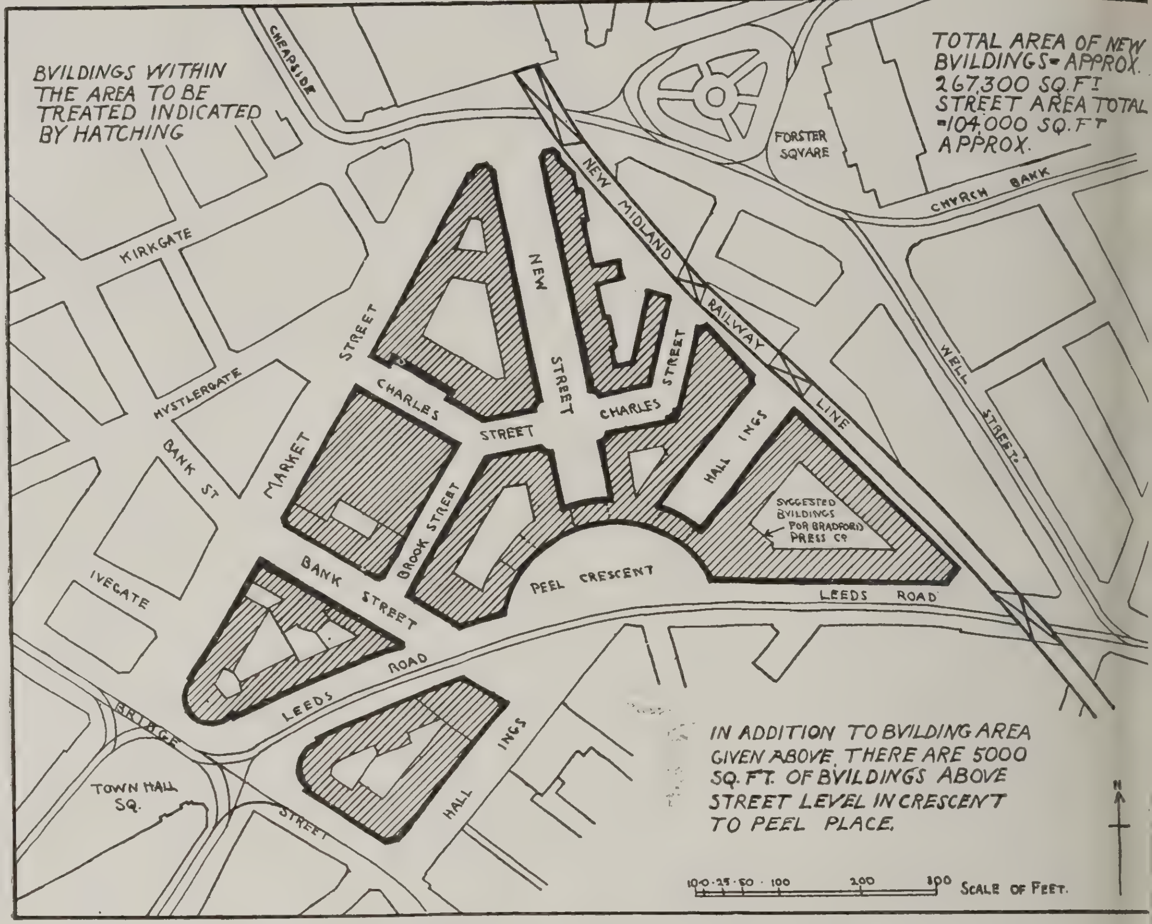
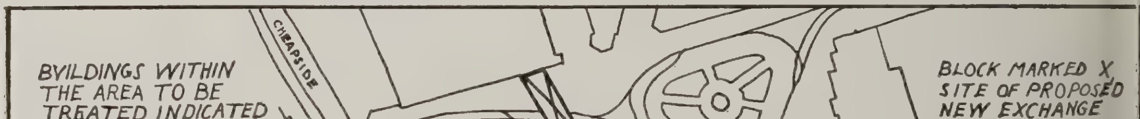


BUILDINGS WITHIN THE AREA TO BE TREATED INDICATED BY HATCHING

TOTAL AREA OF NEW BUILDINGS = APPROX. 267,300 SQ. FT. STREET AREA TOTAL = 104,000 SQ. FT. APPROX.

IN ADDITION TO BUILDING AREA GIVEN ABOVE, THERE ARE 5000 SQ. FT. OF BUILDINGS ABOVE STREET LEVEL IN CRESCENT TO PEEL PLACE.

First-Premiated Design. Gibson, Skipwith and Gordon, Architects.

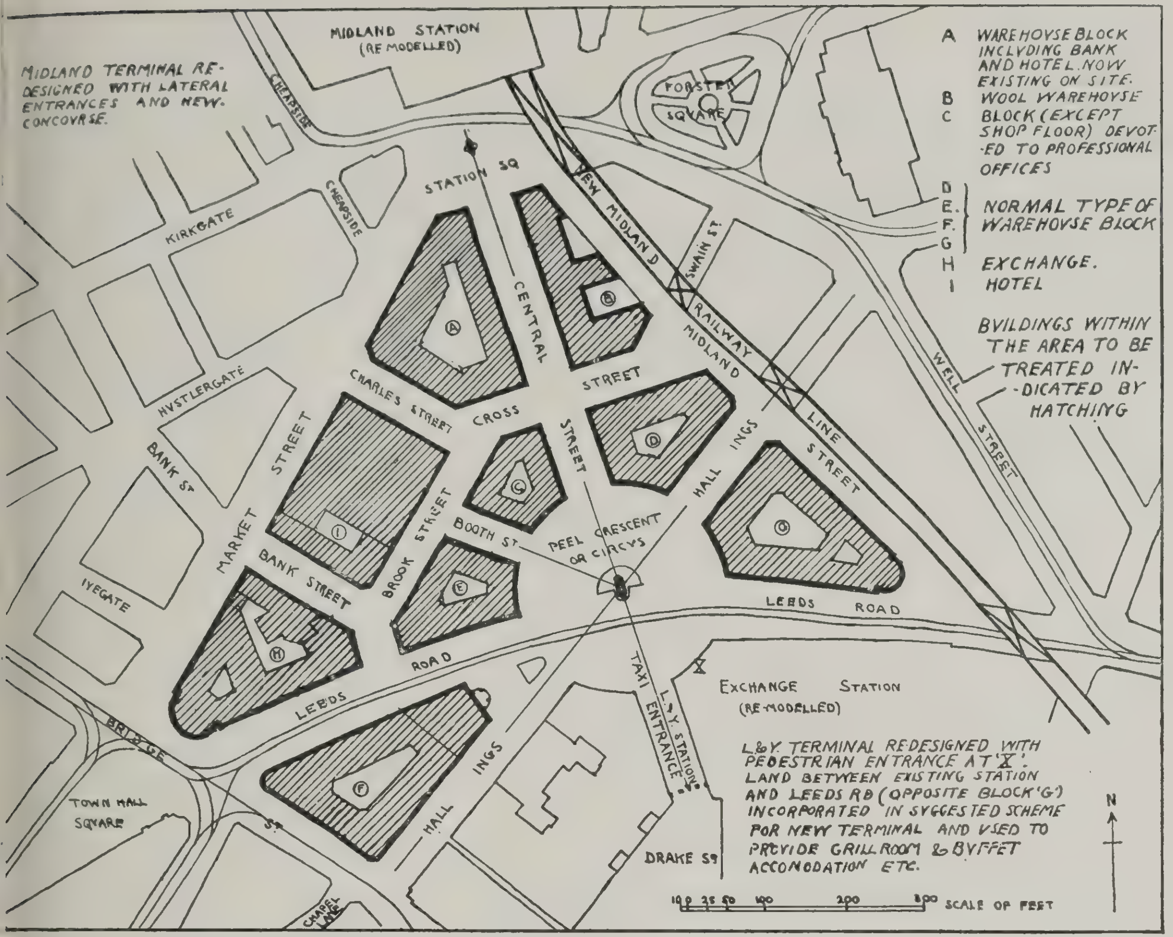


BUILDINGS WITHIN THE AREA TO BE TREATED INDICATED BY HATCHING

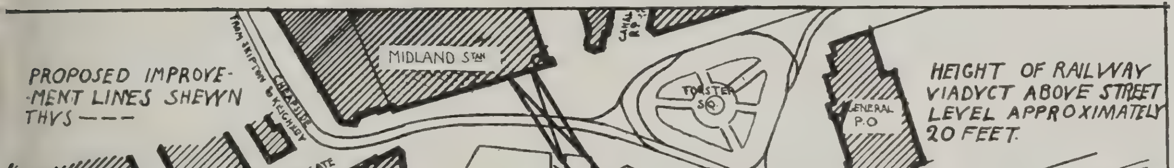
BLOCK MARKED X SITE OF PROPOSED NEW EXCHANGE

GRIFFIN HOTEL, BRADFORD DISTRICT BANK AND GEORGE HOTEL MAINTAINED IN POSITIONS INDICATED RESPECTIVELY BY 'A' 'B' AND 'C'.

Third-Premiated Design. Dann and Horniman, Architects.


MIDLAND STATION (RE-MODELLED)
MIDLAND TERMINAL RE-DESIGNED WITH LATERAL ENTRANCES AND NEW CONCOURSE.
A WAREHOUSE BLOCK INCLUDING BANK AND HOTEL NOW EXISTING ON SITE.
B WOOL WAREHOUSE
C BLOCK (EXCEPT SHOP FLOOR) DEVOTED TO PROFESSIONAL OFFICES
D E. F. G NORMAL TYPE OF WAREHOUSE BLOCK
H EXCHANGE.
I HOTEL
BUILDINGS WITHIN THE AREA TO BE TREATED INDICATED BY HATCHING
FORSTER SQUARE
STATION SQ
KIRKGATE
CHEAPSIDE
CENTRAL STREET
NEW MIDLAND RAILWAY
SWAIN ST.
MIDLAND LINE STREET
WELL STREET
HUSTLERGATE
CHARLES STREET
CROSS STREET
BANK ST
MARKET STREET
BROOK STREET
BOOTH ST
PEEL CRESCENT OR CIRCUS
HALL INGS
LEEDS ROAD
IVEGATE
BANK STREET
BRIDGE ST
TOWN HALL SQUARE
CHAPEL LANE
TAXI ENTRANCE
L.&Y. STATION
EXCHANGE STATION (RE-MODELLED)
L.&Y. TERMINAL REDESIGNED WITH PEDESTRIAN ENTRANCE AT 'X'. LAND BETWEEN EXISTING STATION AND LEEDS RD (OPPOSITE BLOCK 'G') INCORPORATED IN SUGGESTED SCHEME FOR NEW TERMINAL AND USED TO PROVIDE GRILL ROOM & BUFFET ACCOMODATION ETC.
DRAKE ST
N
100 25 50 100 200 300 SCALE OF FEET

Second-Premiated Design. Patrick Abercrombie and Lionel B. Budden, Architects.



Sketch of Site Plan.

EPLANNING THE CENTRAL AREA OF THE CITY OF BRADFORD.

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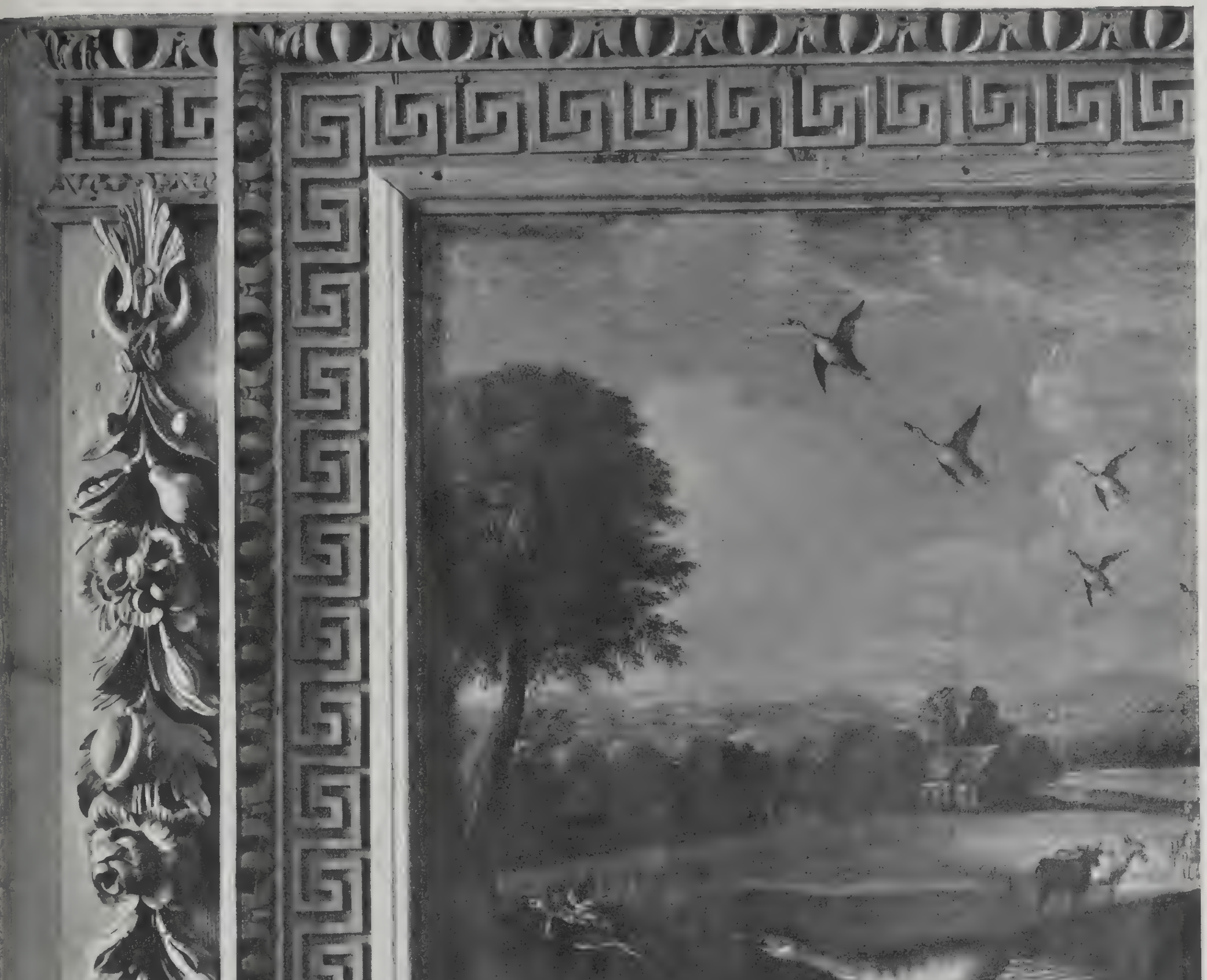

ETAILS OF CRAFTSMANSHIP. XX. CARVED PINE OVERMANTEL FROM No. 5, GREAT GEORGE STREET, WESTMINSTER.

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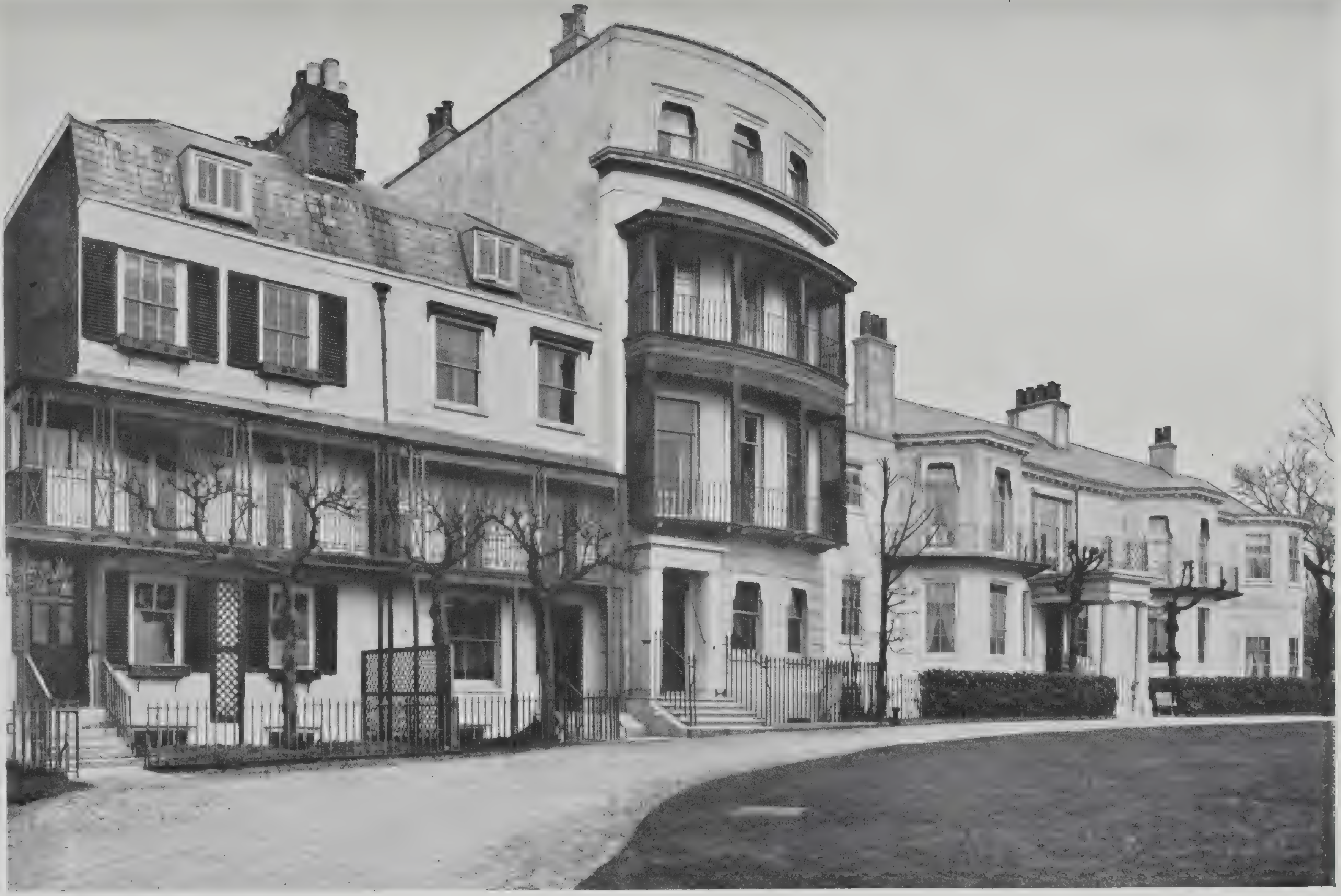

SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XLV.—TERRACE ON RICHMOND HILL.

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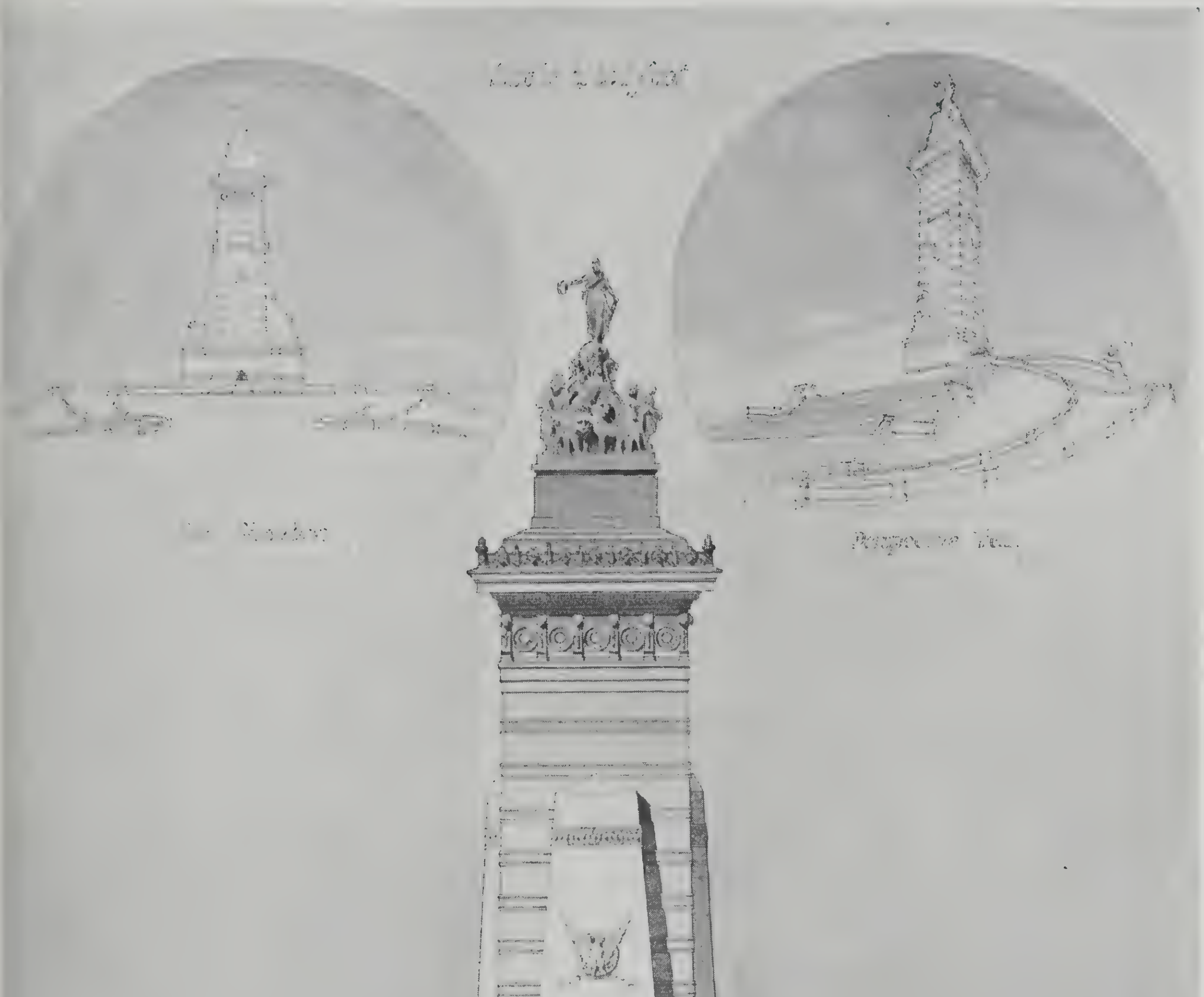

STUDENTS' DRAWINGS. XLIII.—DESIGN FOR MONUMENT TO LORD ROBERTS.

BY ALFRED B. B. JOPLING.

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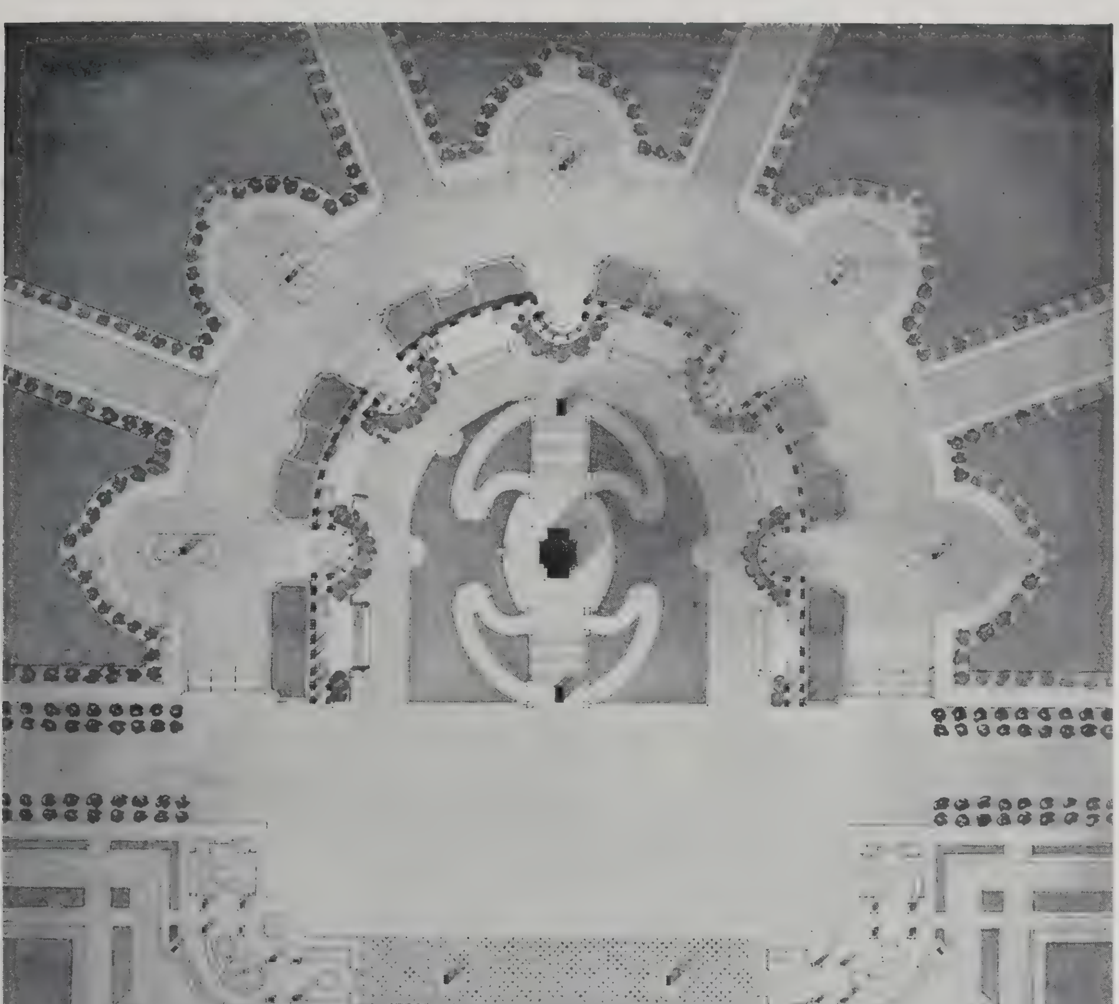

STUDENTS' DRAWINGS. XLIV.—DESIGN FOR MONUMENT TO LORD ROBERTS.

BY ALFRED B. B. JOPLING.

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OF THE
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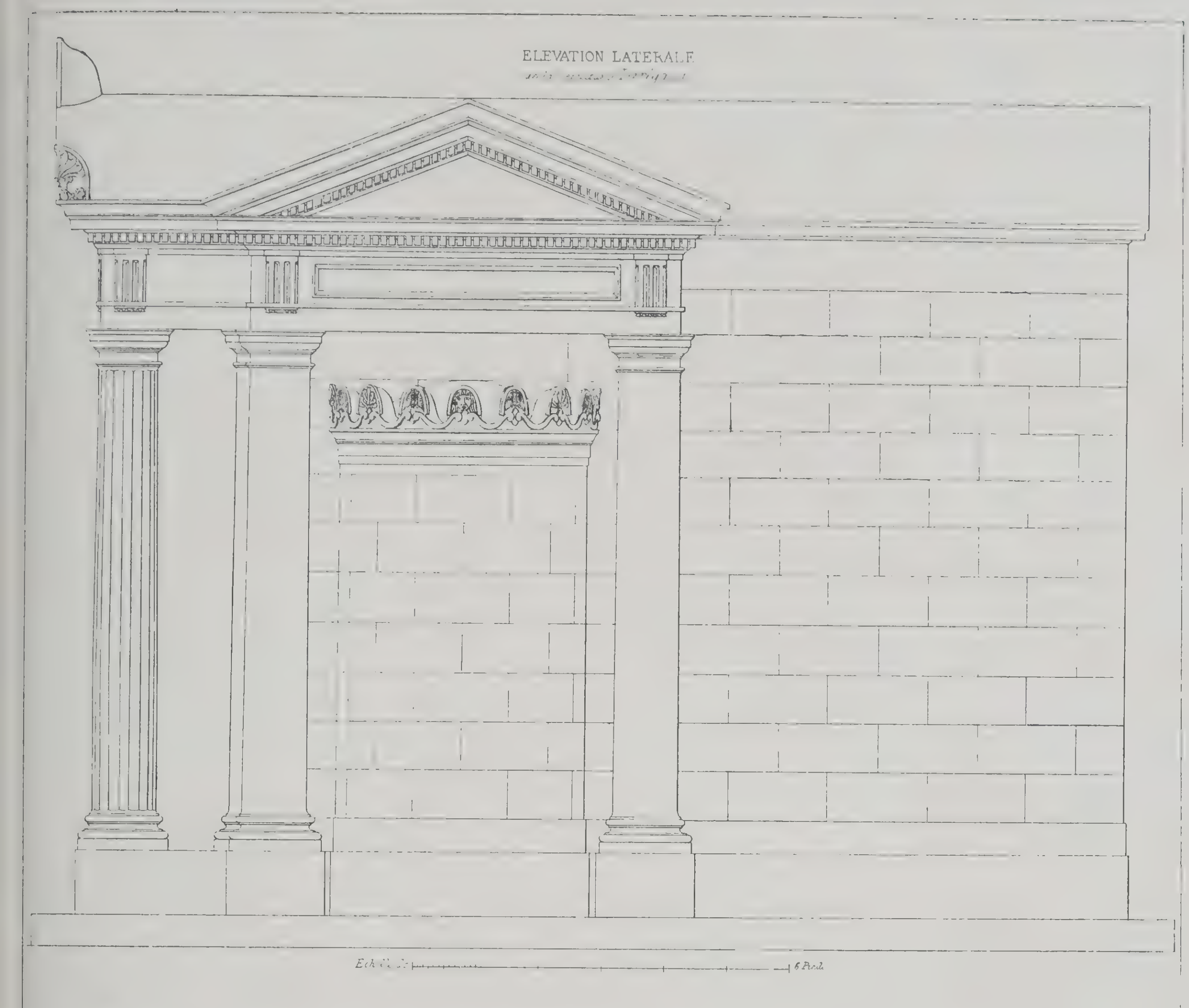


FRENCH MONUMENTS. XIX.—PERREGAUX MONUMENT IN CEMETERY OF PÈRE LACHAISE, PARIS.

BRADFORD CITY IMPROVEMENT COMPETITION.

[SPECIALLY CONTRIBUTED BY S. C. FOULKES.]

Corporation of Bradford invited designs for
he laying out of that portion of the city known
s "the Central Area" and for erecting suitable
es therein. Mr. Reginald Blomfield, R.A.,
ppointed assessor, and premiums of £500,
and £200 were offered for the schemes placed
tively first, second, and third.

dings of at least six storeys in height (exclu-
basement) were required, designed for com-
l purposes, with shops on the ground floor,
on the first, and warehouses over. The
were to be of moderate dimensions, and the
ouses of the Bradford trade type. Stone was
ed as the material chiefly to be used for the
ions. The area to be treated was that
ed by the western extremity of Forster
, by Market Street, Bridge Street, Hall
Leeds Road, and the line of the proposed
idland route. For the limitations affecting
ndling of the area reference should be made
notes on the accompanying sketch-plan of
e. Suggestions for the design of the railway
t and bridges were permitted.

drawings required comprised a block-plan to
nce scale; complete full-figured plans, sec-
and elevations of a type or types of premises
sed to be erected, scale 1-16 in.; and a per-
ve view, the size and method of rendering the
being left to the competitors' discretion.

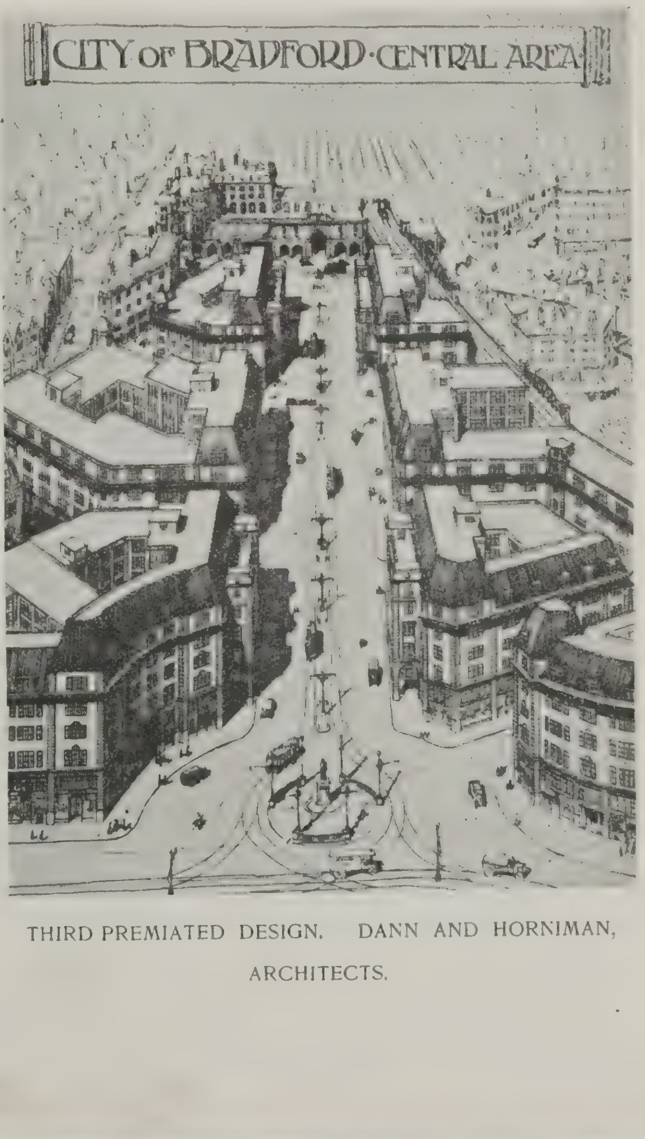
Awards.

t Premium: Messrs. Gibson, Skipwith, and
n, 5, Old Bond Street, London. Second Pre-
Messrs. Patrick Abercrombie and Lionel B.
n, Liberty Buildings, Liverpool. Third Pre-
Mr. Reginald Dann, Crawley, Sussex, and
hn H. Horniman, Hastings.

lance at the accompanying sketches of the
selected site-plans will show that in dominant
hey are identical, and that furthermore they
ss many similarities in the treatment of par-
portions of the area. In all three there is
ished direct communication between the Mid-
and Lancashire and Yorkshire stations by
of a wide shopping street; in all three there
vision for cross traffic between Market Street
orster Square or Well Street: each creates an
space on the basis of Peel Place, and each
a rotunda form to that corner of the site
ng on to Market Street and Leeds Road. This,
er, exhausts the real extent of their con-
. It ceases to be evident when we pass from
to architectural considerations.

winning scheme proposes a segmental curve
e north side of Leeds Road, with Hall Ings
e new Central Street radiating from it. These
s gain access to Leeds Road by tunnelling
gh the two lower storeys of the crescent. No
stion is made for dealing with the south side
ds Road, doubtless on the ground that it was
d the area specified for treatment. The axial
f the new street therefore impinges on the
e face of one of the irregular blocks fronting
escent. To obtain a semblance of symmetry
latter feature the opening giving on to Hall
is echoed by a cavity leading into a ware-
courtyard. A more unhappy circumstance is
lation of the new street to the south façade
Midland station. Instead of being centrally
sed in regard to the latter, it approaches at
ute angle and terminates in two thin polygonal
surmounted by towers. The opportunity for creating a satisfying vista and a dignified *place* are thus alike destroyed. There is neither sufficiency of mass nor a balance of parts, where both are essential to sustain the monumental effect which the occasion justifies and demands. Adverse criticism is also raised by the handling of the south-western portion of the area, where curved forms are disposed in a relation which could give no tolerable æsthetic result. Cubing at 1s., the total cost of the buildings is estimated at £740,625.

To reconcile the first and third awards is a simple matter. They give evidence of a certain consistency of choice. It is not so with the design placed second. Here the problem is solved on lines more likely to be appreciated by a French or an American than by an English assessor. On the basis of a practical arrangement (in its essence common to all of the successful competitors) there is produced a design which observes architectural principles. The dominant forms adopted appear to have been arrived at as the result of a consideration of the immediate environment and of the limiting conditions obtaining in and about the Central Area. In the case of the largest open space, namely, Peel Place, a shape has been utilised that gives certain positive advantages. It renders possible the architectural correlation of Leeds Road and Hall Ings as elements in a uniform composition (of which they with Central Street form the radial nucleus), whether that composition be a crescent or a circus. For it will be observed that if the process of remodelling be rigidly confined within the specified area, a hemicycle is obtained. The building fronts to the hemicycle or circus have been so adjusted that they constitute equal



THIRD PREMIATED DESIGN. DANN AND HORNIMAN, ARCHITECTS.

segments, whilst a ratio of solids to voids has been adopted adequate to maintain either shape as a complete architectural composition.

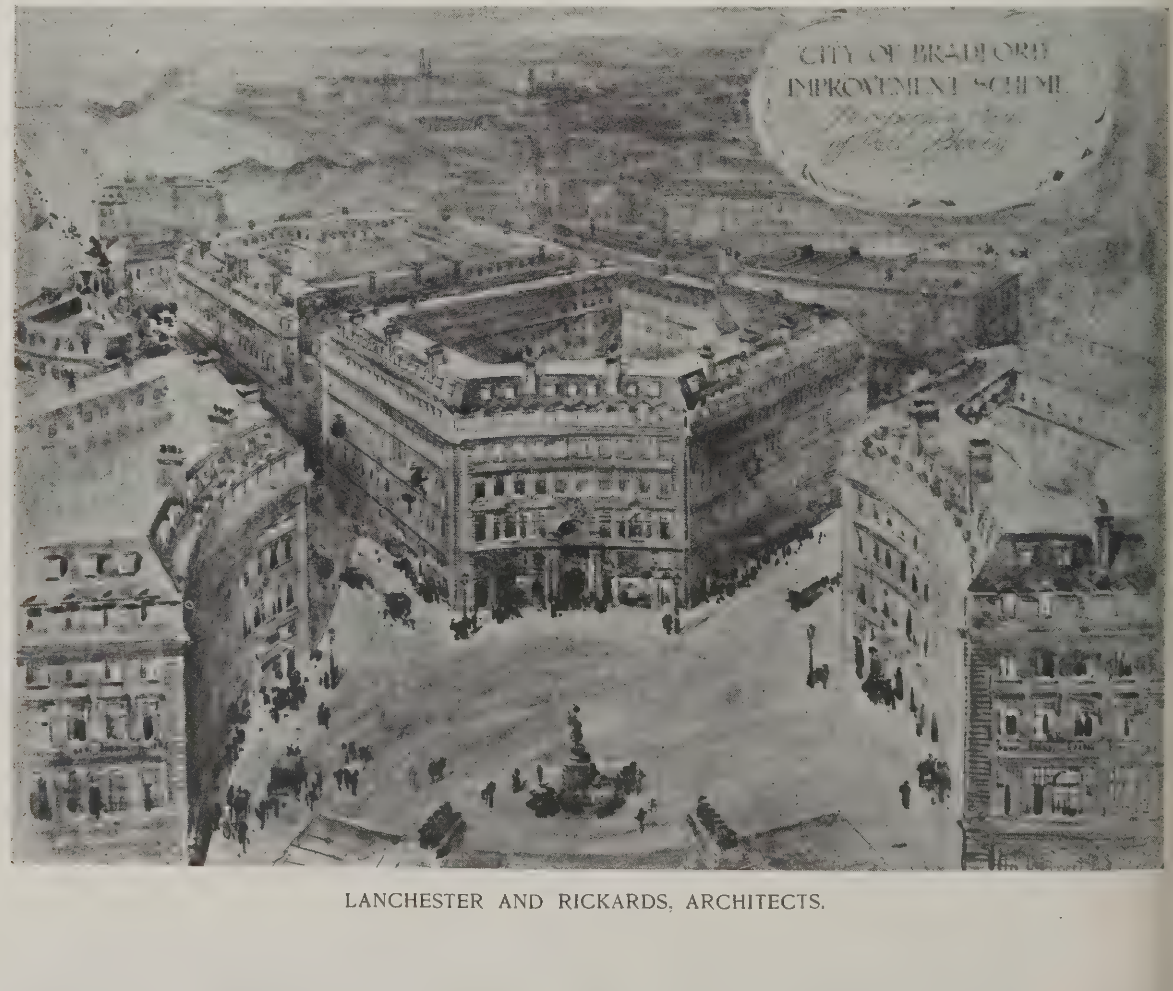
The northern termination of the vista of Central Street is sufficiently provided by the proposed new façade to the Midland station. An effective background to the monument closing the vista in an opposite direction is formed by the colonnade placed at the point of highest elevation on the taxi-entrance to the Exchange terminal; a colonnade which furthermore performs the useful function of screening the oblique angle of the platform canopy beyond the concourse. Central Street itself is axially coincident with the centre of the Midland façade, and a regular forecourt to the Terminal is thus rendered possible.

No effort has been made to emphasise the existence of the proposed new Midland route, its lowness, its sinuous line, and its oblique direction no doubt alike combining to recommend a restrained treatment. The bridges alone offer an architectural opportunity of any magnitude, and in this connection the authors content themselves with a recommendation in their report that as far as the Forster Square bridge is concerned a triple rather than a single span is desirable, since the latter would necessitate a lattice combination-girder of a size destructive to the scale of the neighbouring architecture.

In contrast to the marked verticality of many of the surrounding buildings the masses throughout have been disposed horizontally, and the composition of the whole has evidently been formed with a view to securing homogeneity. The façades of every block are restrainedly modelled, with a sparing use of three-quarter or full columns in the case of Peel Place, Station Square, and the Exchange. Simple variations on one type of shop front only are suggested. It is that prevailing in many quarters in Paris and most successfully handled in the Place Vendôme. By a free use of metal infilling for the window voids, very full lighting has been obtained without loss of apparent architectural stability. The
whole has been conceived in what may be tern
rather French interpretation of the late Eight
Century—English—tradition. Where the au
have exceeded the limitations established i
conditions—as in the remodelling of the two
tions and the carrying on of the form of Peel
on the south side of Leeds Road—their sugges
are complementary rather than essential to the
scheme. The estimated total cost of the ere
of the new structures "within the limit of
tion" is £925,000, a cubing rate of 1s. 3d.
adopted.

For the third-premiated design one cannot
a great enthusiasm. Its roof treatments and f
tration are unfortunate and the shape of Peel
very unsatisfactory. The position of the Excha
the same as that chosen by the authors
design placed second, but its elevational treat
(particularly that of the dome) is crude. As
case of the first-premiated scheme, no provis
made by means of a road parallel to the new
land route to relieve the Central Area of much
warehouse traffic. Tramway lines are carri
the new central street. The question as to wh
the centre of the area should be freed of tra
traffic or not is one to be decided according
class of shopping which the Corporation desi
encourage within the district. If the central a
is to be the Regent Street of Bradford, it shou
maintained as a wood-blocked carriage-way
But if it is desired to make it a Tottenham
Road there can be no objection, and there may
be advantages, in permitting the extension
tramway system. Messrs. Dann and Horr
cube their buildings at 1s., and estimate the
of the total to be £733,335.

Of the unplaced designs that submitte
Messrs. Lanchester and Rickards is unquestio
the most competent. It is, indeed, in the opin
the writer, superior to both the first and thir
miated schemes. Unfortunately, its chief fe



LANCHESTER AND RICKARDS, ARCHITECTS.

s a disregard of the limiting conditions im-
For this the conditions themselves are to
They presuppose that the Central Area
be treated as if it were isolated and hemmed
ɔn all sides by structures which it was neither
e nor desirable ever to modify, much less re-
It is a view which the circumstances of the
.o not warrant, and which has resulted in
ing out of a most able effort to correlate the
d its environment. Messrs. Lanchester and
ds' scheme proposes the partial destruction
block facing the west end of Forster Square
e continuance of Cheapside to a focal point
xchange Station. There a circus is created
concentric road on the south side. The
of the conception is exhibited in a most
.ble perspective in colour.

ut one-half of the remaining designs presented
to show a realisation of the nature of the
ns which the site presents. The most im-
t is that of traffic direction. In modern Con-
ıl and American cities it has generally been
.ised that the linking of principal stations by
routes is a first necessity ; where this prin-
, neglected there must always result confusion
:onomic waste. When, therefore, the oppor-
occurs in the remodelling of a central area
ting two chief terminals their immediate con-
ı must be one of the bases upon which the
.ent of the whole is founded.

s obvious that especial difficulties both of
and internal disposition are created in an area
ted by the complex accommodation specified as
ɔle ; the respective demands of shops, offices, and
ɔuses cannot each be fully met, but must be
ed by compromise. As far as possible the bulk
warehouse traffic should be relegated to non-
ng and subsidiary streets. And rather than
uate the objectionable practice of loading lorries
he roadway, the blocks should be designed suffi-
large to contain adequate loading courts within
elves. Again, the directions of streets where not
y prescribed should be determined by the need
ining (1) an east or west light for shopping pur-
and (2) a north light for warehouses from street
rtyard.

area of the size under consideration, covered by
ıgs of the specified minimum height, requires
: more open spaces for its proper ventilation.
might seem the most natural position—namely,
ıtre—is rendered unsatisfactory for the following
s. Whatever form is adopted cannot be made
cient dimensions and at the same time permit the
n of buildings of practicable depth and form
en itself and the proposed new Midland route.
ver, it cannot be architecturally adjusted to Swan
e. Finally it is not possible to treat it as a radial
for cross traffic routes, as the latter would serve
eful purpose, and the building plots formed by
would be of unsuitable shape. Nor in view of
ablished necessity of connecting the two stations
it be designed as a non-traffic *place*.

no such objections hold in the case of the sites
liately adjoining the Lancashire and Yorkshire
ıe Midland terminals ; each is an inevitable focus
fic, on each radial routes must converge, and their
ısis by non-obstructive monuments is easily
ed.

pite of these facts a considerable number of com-
:s involved themselves in impossible arrange-
by creating a series of roads parallel to Market
, and then endeavouring to carve out of them a
:ctory space.

y the authors of the second design appear to
:nown of the purchase by the L. and Y. Company
: land between Exchange Station and Leeds
for no other competitors attempted to anticipate
ıilway company's obvious intention to remodel the station and bring it into contact with the central area. The Midland terminal has similarly been neglected, though the inevitable future addition to its traffic and its increased importance in relation to the central area as redesigned justify a new and finer front.

It should be recognised that any failure in agreement between the City Council and the railway companies concerned in the task of providing Bradford with a dignified civic centre would be disastrous to the true interests of both parties.

THE EVOLUTION OF THE ARCHITECTURAL COMPETITION.*

BY H. V. LANCHESTER, F.R.I.B.A.

THOUGH there be some who feel a doubt as to the beneficial influence of the competition on design, the author trusts that by a closer study of the question these doubts may be dispelled. It is his chief purpose to deal with the history of the competition.

He has found no definite record of an architectural competition in Greece or Rome, but the principle was one so familiar to these peoples that he would be greatly surprised if none such took place. Four sculptors—Leochares, Bryaxes, Scopas, and Praxiteles—were employed to decorate each of the four façades of the Mausoleum, and the public were thus able to compare their work (Vitruvius: Book VII. quoted).

In Leader Scott's work on the Comacine Guilds we find that the members of the Guild were naturally accepted as qualified to adjudicate. In the case of Siena Cathedral a council of monks, with masters of the Guild, met to consult on the placing of the columns in the second foundation, and Orcagna's plan was chosen. In the competition for the dome of the Cathedral at Florence, Brunelleschi, who ultimately proved to be the ablest architect, was outside the brotherhood. Brunelleschi's strike for independence appears to have given the deathblow to the great Masonic Guild, which, as it became more unwieldy, had been slowly disintegrating. Thus the Guild drops out as a body controlling competitions, and for a long period such decisions as are made come ostensibly from the laymen interested, or in modern terms, the promoters.

Though numerous designs were prepared for St. Peter's at Rome, and though some of these were still under consideration when another was demanded, the circumstances hardly justify us in regarding them as competitive. We come nearer to the idea of a competition in the case of the Louvre, where at one stage a selection could have been made from a number of designs. Mr. W. H. Ward, in his "Architecture of the Renaissance in France," has a description of the competition for the completion of the Louvre. Among those who submitted schemes were François Mansart, Jean Marot, Pierre Cottart, and Claude Perrault. The King was induced to believe that he preferred a fresh design prepared by Claude Perrault, and this with minor alterations was carried out (1667-80), though the work remained under the charge of Le Vau, and later of d'Orbay.

In the eighteenth century we come to a better organised competitive proposal—namely, that for a monument to Louis XV., where the conditions were exceptionally open in their character. The King having selected an open area between the Tuileries and the Champs-Elysées, a fresh competition was initiated. A site plan was issued, accompanied by the single instruction that the King's statue should be on the line of the broad walk in front of the Tuileries garden. Several of the designs had special advantages, and M. Gabriel was directed to combine these, in order to include them all in the executed work. Thus was determined the design of the Place de Louis XV., now the Place de la Concorde.

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* Extracts from a paper read before the Royal Institute of British Architects on May 17.

In the eighteenth century the number of architects in the British Isles was not large, and competitions were usually limited to a few—for example, in 1768 James Gandon, Thomas Cooley, and Thomas Sandby competed for the New Exchange, Dublin, which Cooley secured. The competition for the East India Company's building in 1799 produced designs from Holland, Dance the younger, and Soane. Slightly earlier Thomas Harrison won the competition for rebuilding the Castle at Chester.

The fourth decade of the nineteenth century witnessed three important competitions. The first was that for the Houses of Parliament. Ninety-seven designs were submitted to four Commissioners, who on February 29th, 1836, unanimously selected that by Charles Barry as the best. For St. George's Hall, Liverpool, there were eighty-six competitors, among whom H. L. Elmes was successful, subsequently winning the Assize Courts Competition in 1841. The third competition was that for the Royal Exchange. Robert Smirke, Joseph Gwilt, and Philip Hardwick were the assessors. The first premium was awarded to William Grellier, the second to A. de Chateauneuf and Arthur Mee, and the third to Sydney Smirke. Designs by T. L. Donaldson, Richardson, and David Moccatta were commended, but were considered to exceed the stipulated cost of £150,000. None of these designs was carried out.

On September 30, 1856, the Commissioners of Her Majesty's Works and Public Buildings gave notice that they were prepared to receive three designs from architects of all countries—the first to comprise a scheme for the concentration of the principal Government offices on a site lying between Whitehall and the New Palace at Westminster; the other two, designs for buildings which it was determined to erect forthwith as parts of such scheme. One of these was to be a Foreign Office, the other a War Office. The paper of instructions to architects, 1,628 copies of which were issued, gave the sizes of all, or most of, the rooms required.

The judges appointed to consider these designs were the Duke of Buccleuch (who was prevented from acting), Earl Stanhope, Viscount Eversley, Mr. William Stirling, M.P., Mr. I. K. Brunel (civil engineer), and Mr. William Burn (architect). The prizes to be awarded were three for the block plan, amounting together to £800; seven, amounting to £1,900, for the Foreign Office designs; and seven, amounting to the same sum, for the War Office designs. The judges awarded the prizes, the premiums were paid, but not one of the premiated designs (which remained the property of the Office of Works) was executed.

The obvious defect in the inception of this group of competitions was the simultaneous issue of programmes for a general scheme and for two buildings that would form part of this. We can hardly be surprised that it ended in a muddle, and left an impression adverse to the competition system. Even in 1880, when Mr. Thomas Porter read a paper here on the subject, he referred at length to this competition in support of his objections to competitions generally, and at this time a large number of members of our Institute seem to have been in agreement with him.

In 1864 a competition was held for Museum Buildings on the site now occupied by the National
History Museum. It was assessed by a jury c
posed of Lord Elcho and Messrs. Tite, David Rob
Fergusson and Pennethorne.

Captain Fowke gained the first premium,
fessor Kerr the second, and Mr. Cuthbert Brod
the third. Complaints were made as to the draf
of the conditions which divided the site into
equal halves, and left it very vague as to how
the western half could be used for the accomm
tion scheduled. This division was obviously
necessary, and some of the designs, including
of Captain Fowke, ignored it. Those which
not were thus placed at a disadvantage.

The competition for the Law Courts in 1866
1867 was conducted by a Commission with wh
concurrence the following were appointed as judg
Chief Justice Cockburn, Sir Roundell Palmer, W
Gladstone, W. Stirling (Maxwell), and W. Cow
First Commissioner of Works.

On application from the competitors, two pro
sional men—John Shaw and George Pownall—v
added. The judges took into consultation e
interested party they could call to mind, asking
verdicts on the plans from each special point of vi
As may be imagined, though the designs submi
were only ten in number, the affair got into a
perate tangle. As an example, a report on nin
nine various points of detail based on the view
heads of departments and other authorities sh
that every competitor scores somewhere. Edw
Barry is an easy first, and G. E. Street near
bottom of the list. This might in itself be regar
as a sufficient proof of the futility of this metho
analysis, but if a further one be needed an ins
tion of the mass of reports and investigations res
ing will more than suffice.

It is probable that there was never a more
scientious and painstaking jury, but the value
their work was neutralised by an almost comp
ignorance of the technique of design. The pro
sional members were evidently overweighted by
ideas of their distinguished *confrères*, and the
mate results were so inconclusive and confused t
everyone concerned must have been relieved w
the great beauties of detail in Street's design w
made clear and a justification was found for awa
ing him the work.

The competition for the Paris Opera House t
place in 1860, with a jury composed as follo
MM. Caristie, Duban, De Gisors, Gilbert, Co
Walewski (President), MM. Le Bas, Le Sueur, Le
De Cardaillac, Questel, Lenormand, Const
Dufeux, Hittorff (rapporteur). Five prizes w
awarded: First, Ginain; second, Crepinet
Botrel; third, Garnaud; fourth, Duc; and fi
Garnier. No design was considered quite satisf
tory, and a second competition between the p
miated competitors was advised. As the result
this M. Garnier was in 1861 commissioned to ca
out the building.

In 1882 an open competition for the construct
of the Sorbonne was held. The jury consisted
three representatives each of the University
Public Instruction, the Municipal Council, the P
fecture of the Seine, and the Professors of
Faculties, and six elected by the competitors.
H. P. Nenot won this competition with a brilli
design.

The competition for the two palaces of the 19
Exhibition at Paris took place in 1896. The ju
numbered no fewer than forty-seven members. F
premiums were awarded in each case. Owing to t
amount of work to be done in a short time the Gra
Palais was entrusted to the architects placed fir
second, and third, with M. Girault, who was plac
fourth, as architect-in-chief. M. Girault a
secured first place for and carried out the Petit Pal
Little more than two months were allowed for t

ration of these designs, and the jury arrived
decision in a fortnight, despite the fact that
two hundred designs were submitted.
pamphlet written in 1861 the late M. César
egards the nomination of the jury (the jury
is not questioned) as the greatest technical
lty in a competition, on account of the de-
that all schools of thought should be repre-
, and the difficulty that these have in finding
mon ground on which a logical decision may
ed. He suggests a jury of thirteen.
be quite fair to promoters, it must be said
hen recommendations are put lucidly to them
clear, logical standpoint, in most cases they
accept advice so supported. The responsi-
for seeing that they receive this rests with
chitects, and more important competitions
allen short of the standard they might have
d by our own default than by reason of any
onal malpractice on the part of promoters.
author then endeavoured to define the respec-
nctions of the three parties to a competition—
moters, the assessors, and the competitors—
sted a scheme of procedure, and touched
on some special characteristics of inter-
al competition, and finally remarked that
ition in the past naturally leads up to the
ss we hope to see in the future."

Discussion.

he discussion following the reading of the
Mr. Alfred W. S. Cross remarked that Mr.
ester had been unable to find any definite
s of architectural competitions in ancient
. It was, however, difficult to believe that the
were not accustomed to architectural com-
ns, for the spirit of competition and of
ion was pre-eminent in ancient Athens,
public competitions were instituted for
c, sculpture, literature in general, dramatic
, etc. One of the most famous architectural
ients in Athens, the Choragic Monument of
ates, was a standing record of the success
icrates in training the chorus in one of the
dramatic contests. With regard to the com-
for the Dome at Florence, that was scarcely
petition as we understand the term. There
o elaborate designs prepared, but each com-
was required to explain how he would
ct the Dome on the substructure already
g. Brunelleschi, fresh from the study of
Roman domes, had his own idea of construc-
Vasari says, "Knowing the imperfect intel-
of the assessors, the envy of the competi-
d the instability of the citizens who favoured
e competitor, now another, as each chanced
se them," Brunelleschi was afraid to exhibit
wings and models of his proposals. Conse-
he harangued the promoters for days and
vain attempts to explain the merits of his
But his remarks were so unintelligible to
men who were trying to grapple with this
lous problem that finally he was refused ad-
e to the assembly room and on one occasion
rcibly ejected. With regard to the com-
for the completion of the Louvre, it was
Colbert that Bernini, whose design had been
d, was superseded by Perrault, the Italian
ct being sent back to Italy loaded with
and wealth. Colbert thereupon executed
ll-known colonnade with its twenty-eight
Corinthian columns. Possibly Fergusson
ht in his criticism that Bernini's design was
florid.
. S. Gibson said there was a fatal fascination
his subject. Once the young architect began
an interest in competitions, it was astonish-
much he could learn, and how much good it would do him. Competitions formed a page of the history of the great evolution of architecture in every country. The Institute had done much valuable work in trying to conduct, and organise, and carry on the work of competitions in such a way that architects, as well as the promoters and others having vital interests in good architecture, should have fair conditions, and a fair chance.

Mr. A. E. Richardson pointed out that the system of double competition, as employed under the Second Empire in France, was sometimes a good one. It was a fact not generally known that Garnier threw over his design for the Paris Opera House on being shown a plate of the fine theatre at Bordeaux. The Paris Opera House was based on the plan of the Bordeaux theatre. Professor Cockerell in an interesting letter on the system of competitions written to the papers in 1857 laid it down that the success of the competition system depended primarily on the constitution of the tribunal appointed for the adjudication. This, he said, was the grand assurance of the integrity and the competency of the award, not only as doing exact justice to the public as regards the great object of the competition, but to the relative claims of those who had contributed their genius, experience, and labour towards that object.

Mr. A. J. Davis said that with regard to the Grand Palais competition there was an idea in some architects' minds that it was a mistake to have put a dome on the Petit Palais. The avenue to the Pont Alexandre III. was opened out for the purpose of showing up the fine dome of the Invalides, and it was a mistake to have put the small dome at the entrance of the vista. It introduced a sort of anti-climax.

Professor Adshead observed that in the jury system there seemed to be a danger of regarding the assessing as work for a machine rather than for an individual. One could not eliminate the human and individual interest. He doubted the efficacy of a system of adjudicating entirely by jury.

Mr. H. H. Statham said that one of the dangers of competitions was that they were usually adjudicated by a single assessor, and the promoters were practically under a promise to bestow premiums according to the assessor's judgment. What competitors gained by the Council-appointed assessors was that the decision was always an honest one. But it was only the opinion of one man, who was fallible. It would be better to appoint two or three assessors.

Mr. Rickards confessed that he found himself at variance with Mr. Lanchester when he expressed doubt that the best architect made the best assessor. A man capable of designing was, he thought, the one best able to recognise tendencies in others.

Mr. H. W. Wills remarked that competitions had found their excuse and justification in the very much greater attention which architects had been forced to devote to planning, which was the most important thing in architecture. The huge advance made since the planning of the 'sixties and 'seventies had been due almost entirely to the practice gained in architectural competitions.

The President, Mr. Ernest Newton, A.R.A., in some humorous remarks at the close, said that on the whole the history of competitions seemed to show that whatever the system of assessing, the scheme which was head and shoulders above all the others was generally successful. He mentioned this because it seemed to him that in that case competitors had the matter entirely in their own hands. It was merely that the best man had to produce something which stood out as so much better than any other, and the assessor's work became extremely easy.

THE USE OF LEAD IN PAINTING BUILDINGS.

ON January 20, 1911, a Departmental Committee was apopinted by the then Home Secretary, Mr. Churchill, under the chairmanship of Sir Ernest Hatch, Bart., to investigate the danger attendant on the use of paints containing lead to the health of persons engaged in painting buildings, and to consider and report what should be done to obviate or reduce the danger.

The Building Trade was represented upon the Committee by Mr. F. G. Rice, President of the London Master Builders' Association, and the Painting Trade was represented by Mr. W. G. Sutherland, Secretary of the National Association of Master Painters and Decorators, who has recently died. The operative painters were represented by Mr. Archibald Gardner, for Scotland, and Mr. J. Parsonage, for England. The report of the Committee is dated November, 1914, but has only lately been issued. The Committee met on 49 days, of which 37 were occupied in taking evidence and 12 solely in deliberation. In all 118 witnesses were examined, of whom 93 were selected and called by the Committee.

Of that total 38 were employers of house painters, 25 were representatives of manufacturers of painting materials, 11 represented the operatives, and the rest were expert professional witnesses covering the medical and chemical side. There were also witnesses who dealt mainly with ship and bridge painting.

The summary of the evidence begins with that of Dr. Legge, H.M. Medical Inspector of Factories, which practically states the case showing the extent of the trouble for which a remedy is sought.

The enquiry was somewhat hampered by the lack of statistical evidence bearing directly upon the occupation of house painting, the provisions of Section 73 of the Factory and Workshops Act, 1901, requiring the notification by medical practitioners of cases of lead poisoning coming under their notice, does not apply to house painters, although a considerable number of such cases are reported voluntarily every year. The information available showed that the largest number of reported cases occur in London, Birmingham, Manchester, Bristol, and Leeds. Scotland reports very few cases and more than half of them come from Glasgow. The estimated number of workmen engaged in the house-painting trade is given as about 150,000. The estimated number attacked by illness attributed to lead poisoning for the ten years 1900-9 among painters and plumbers is 9,516 and the number of fatal cases reported during the same period is 387.

Over the like period in England and Wales there were 293 deaths certified as being due to lead poisoning among painters, which is equal to 29.3 deaths per annum among 150,000 persons, or 0.195 per 1,000 of occupied painters.

The above figures appear to be the only evidence available as to the magnitude of the evil, and should be compared with those in other industries, such as that of white-lead making, where the mortality per 1,000 per annum is 2.141, down to printing, where it is only .029 per 1,000.

The Commission in its report says, "Imperfect as these official records may be, it is abundantly evident that in the house-painting industry plumbism constitutes a very real evil."

"Practically every witness whose attention was called to the figures admitted that the extent of illness and death attributable to its ravages was very deplorable, and agreed that immediate action ought to be taken to reduce it to a minimum."

The report points out that legislation has taken place in regard to this question in several foreign countries, and gives a short account of its scope, which ranges from prohibition of the use of white lead in France as from January 1, 1915, to regulations of more or less stringency in Austria, Germany, Belgium, and Switzerland.

The scientific evidence showed that a good deal of poisoning productive of symptoms akin to those associated with lead poisoning may result from the inhalation of fumes from the oil and spirits which serve as media for carrying and spreading the lead paint, but as this knowledge is very recent, it is impossible to say how many cases of that kind have been deemed to be the result of lead poisoning.

The evidence adduced went to show that the chief cause of lead poisoning is the inhalation or swallowing of lead dust set free in the processes of rubbing down and scraping surfaces covered by lead paints.

There was a conflict of evidence as to whether dry rubbing down could be entirely dispensed with, but as the point was evidently a new one to the witnesses it is probable that those who thought it could not be done without spoke without having tried to do so, and that if a waterproof sandpaper could be produced, as it probably could, a damp process of abrasion could be generally adopted in the painting trade. It is certain, however, that dry rubbing down could be dispensed with on all old painted surfaces.

The removal of old paint by the process of burning off was also indicated as a cause of poisoning due to the fumes given off and it was agreed that burning off could be done away with.

Several witnesses suggested the use of respirators by painters for those processes which cause poisoning, but there seemed a disposition to regard the suggestion as impracticable because it had not been tried yet; perhaps after the recent experience of the British Army of the value of the simplest types of respirator in enabling troops to face the poison gases of the enemy this opinion should be revised.

Stress was laid by every witness on the value of attention to personal cleanliness, the wearing of overalls, their frequent washing, the prevention of smoking while at work, and these precautions do not offer any serious difficulty.

The familiar objection to regulation and inspection, which is common to all industries, was evident in the replies of those witnesses and associated bodies who said they would prefer prohibition of the use of lead to regulation of its use. Too much importance must not be attached to this objection. Similar objections have preceded every reform of the factory laws, but have disappeared in time, when familiarity has robbed the men of preconceived ideas which experience shows are not well founded.

The chief real difficulty appears to be that of adequate inspection, but it may be, however, that this objection is no better founded than the other. Stress was laid in this connection upon the experience of the Admiralty, which endeavours to enforce regulations as to attention to cleanliness without entirely succeeding in eliminating lead poisoning, but this lack of success may be accounted for if the practice o rubbing down is still persisted in, w the report clearly shows is the main c of the trouble.

As regards suitable substitutes for v and red lead there was much confli evidence, and it cannot be regarded as clusively proved that such substitute available, though it is clear that the u lead paints for interiors of buildings be greatly reduced and that ther evidently a tendency to employ substi already.

The Commission concluded to re mend that a law should be introduced hibiting in this country the importa sale or use of any paint material w contains more than 5 per cent. of its weight of a soluble lead comp determined in accordance with a for set forth; subject to certain exemp in regard to special colours and in re to special branches of the general pai industry where it could be shown to satisfaction of the Secretary of State the use of lead paints containing more 5 per cent. of soluble lead cannot as y dispensed with; the law to come operation three years after the passi the Act. It is also suggested that p to regulate the use of turpentine and substances used in paint should be ferred upon the Secretary of State.

In view of the evidence and the a recommendations it appears that re tions will probably be required anywa spite of the opinion of the Commi that they would be inefficacious, so th is a question whether the prohibitio white lead is really justifiable in the cumstances, and this lends point to separate memorandum contributed by W. G. Sutherland, who was intim associated with the painting trade nearly forty years, first as an appre and for over thirty-two years as employer, and who on the evidence cludes, *inter alia*, that the most na course is to prohibit (under h penalties) dry-rubbing down, and remove at one stroke the great sour danger from poisoning by lead dust. also contends that a probationary peri not less than five years be allowed, du which time it shall be made compulsor employers to make returns of all occurring to their workmen so as to a at the true incidence of cases, and th ensure perfect returns the machinery o National Health Insurance Act shoul utilised for the stating of all cases, s or otherwise, of lead poisoning.

In view of the conflicting charact the evidence, and that even if the re mendation of the Commission is ad a period of three years is proposed b the Act shall become operative, it app to be sound common sense to extend period to five years and to put into Mr. Sutherland's suggestions in interim; on the understanding that prohibition shall not become operative the result of this interim experience been considered and pronounced upon further commission. It only means a years' delay if prohibition is ultim deemed necessary, and it provides f least minimising meanwhile the amou sickness and death due to lead poison which the Commission repeatedly rightly characterises as deplorable, such that immediate action ought t taken to reduce it to a minimum.

NEWS ITEMS.

Memorials and Monuments.

:w book on memorials and monu- by Mr. Lawrence Weaver, F.S.A., ıt to be published by "Country

'ew Free Library, Didsbury.

ẇ public library at Didsbury, given Andrew Carnegie, and opened on ı5, has been designed by the ester City Architect, Mr. Henry n sixteenth-century Gothic style, the shape being octagonal.

:ltar for St. Michael's, Newcastle.

[ichael's (R.C.), Newcastle-on-Tyne, t had added to it a Lady altar, the ıs gift of the Rev. Father Davidson, .emorial to his parents. The altar s̈igned by Mr. G. Gilbert Scott, the :t of Liverpool Cathedral.

yal Colonial Institute, Bristol.

ilding to form the headquarters of stol branch of the Royal Colonial e, the gift of Mr. T. J. Lennard to zens of Bristol, was recently opened l Grey. Bath stone has been used principal façades, which are deco- ith carved emblems of the Empire. eception room has an area of ft. Mr. Norman G. Bridgman, 3.A., is the architect.

'nement of R.I.B.A. Prizes and Studentships.

ıe recommendation of the Board of ctural Education the Council have that, owing to the existing condi- ıe competitions for the prizes and ships postponed from last year further postponed until next year, e exception of the Ashpitel Prize. shpitel Prize (books to the value of nds), founded in 1872 as a memo- the late Mr. Arthur Ashpitel, for ouragement of the study of archi- is awarded annually to the student tinguishes himself most highly in e of the Final Examinations held the year.]

Town Planning for Rosyth.

the Rosyth Housing Act became first conference of the parties in- in the development of the district he erection of houses was held in aline Council Chambers on May 26. ntatives were present on behalf of miralty, the Local Government and the Scottish National Housing y, and the Town Planning Com- of Dunfermline Town Council l on behalf of that body. The con- lasted two hours, and it is under- ıat matters have now reached a which the utmost expedition will n in the construction of a large of houses for Rosyth workers re- occupation by October or Novem-

lfrican Branch of the Society of Architects.

ccount of the activities of the branch at Johannesburg estricted during the war, and eing less need of funds for purposes, it has been decided the money usually expended on nctions and visits to works to the distress. The branch has voted bution of £25 to the Governor- s Fund for the relief of distress y the war, and has also sent a sum uineas to the funds of the Profes- Employment Committee of the ts' War Committee. The Council of the branch also report that the South African School of Mines and Technology has accepted the offer of the South African branch of the Society of Architects to give prizes of a total value of ten guineas to members of the architectural classes at the school in the subjects of Architectural History and Studio Class Work.

Opening of the King George Hospital.

The new King George Hospital at Waterloo, London, which has more beds under one roof than any similar institution in the United Kingdom, received its first batch of wounded from the front on May 26. The hospital occupies the building in Stamford Street which was being erected for the Government Stationery Office, and its six floors when fully equipped will accommodate 1,650 patients. At present only the fourth and fifth floors are in use, but the completion of the others is being pushed forward with all speed. Two operating theatres are to be provided on each floor; there are to be recreation rooms and a roof garden. It is stated that 305 tons of asbestos sheeting have been used in partitions, together with over 46,000 square feet of glass, and that the 3,360 electric lamps have utilised 55 miles of wire. In the construction of the building a system of overhead travellers, electrically driven, was installed, and the buckets or hoppers were run over the framings, and the concrete brought to the work and tipped into the framing, and subsequently rammed by hand.

OBITUARY.

Lieut. L. K. Adams.

Lieutenant Laurence Kingston Adams, M.A., A.R.I.B.A., was the second son of Mr. and Mrs. William Adams, of Wyndcliffe, Birkdale, Southport, and became lieutenant in the 7th King's (Liverpool Regiment) in 1913. He was educated at Elleray Park School, Wallasey, Cheshire, at Shrewsbury School, and at Liverpool University, where he took his degree with first-class honours in Architecture, after spending some time in making measured drawings at Oxford, Paris, and Rouen, and eventually became an Associate of the Royal Institute of British Architects. His age was twenty-eight. According to some details received from his brother-in-law, a captain in the same regiment, he fell, shot through the heart, on gaining the parapet of the German trench at the head of his platoon, on the night of May 16-17.

Mr. J. Arthur Reeve.

Mr. J. Arthur Reeve, who has died at his residence, Yarrow Bank, Kingswear, Devon, at the age of sixty-five, received his training under the late Mr. W. Burges. He was essentially an ecclesiastical architect, and one of his finest works is St. Mark's Church, Salisbury, which is now approaching completion. Among the many works of restoration carried out by Mr. Reeve were Ramsbury, formerly the cathedral church of the diocese of Sarum, Luton, in Bedfordshire, East Dereham, Welborne, and Redenhall, in Norfolk, and Cliffe and Chilham churches in Kent. He designed and built the Missionary College of St. Boniface, Warminster, the Pepys Memorial House, Westminster, and Archbishop Temple's Boys' School and Master's House, Lambeth. The memorial to the five Archbishops of Canterbury buried in Addington churchyard; the remarkable memorial to all those buried in the churchyard of Hayes, Kent; and a tomb, of exceptional artistic merit in its design, to Baron Hambro, in Milton Abbey, Dorset, are examples of his works of this kind. He also carried out the fine screen and altar forming the Pelham Memorial Chapel in Lambeth Church, and in the same church the unusual, if not unique, "font grave" for total immersions at baptism, in memory of Archbishop Benson. Mr. Reeve's decoration of St. John's, Hoxton; his frescoes in St. Andrew's, Ashley Gardens; the mosaics and decorations in the Lady Chapel of St. Stephen's, Westminster; and the chancel and reredos in St. Barnabas, Addison Road, are the chief evidences in London of his artistic mastery in decorative works. In the Thring Memorial Cross at Uppingham his work is associated with the name of a great educationist.

Mr. W. L. Mason, F.R.I.B.A.

As the result of a motor-cycle accident at Ambleside on May 28, Mr. William Lovell Mason, F.R.I.B.A., was killed. Mr. Mason was motor-cycling from Brathay Bridge into Ambleside, when a horse became restive as the motor-cycle approached. Mr. Mason took a sweep to avoid the animal, and his cycle struck a wall. He fell heavily, dislocating his neck. Mr. Mason, who was about fifty years of age, had two sons on active service, one with the 4th Border Regiment and the other with the 11th "Lonsdale" Border Regiment.

Lieutenant C. R. Harrison.

Lieutenant Christopher René Harrison, 3rd (attached 2nd) Leicester Regiment, who died in the Military Hospital at Boulogne of wounds received in the night attack near Festubert of May 15-16, was the youngest son of Mr. Frederic Harrison, the distinguished historian and writer, and brother of Mr. Austin Harrison, editor of the "English Review." He was born on April 27, 1877. He was educated at Clifton College, and took his B.A. degree at Merton College, Oxford. Having been for many years in the office of Sir Thomas G. Jackson, R.A., he became, in 1911, a Licentiate of the Royal Institute of British Architects, and for some years followed his profession of architect, both in England and in the Argentine.

HENRY SAXON SNELL PRIZE.

The Henry Saxon Snell Prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and is to be awarded by the Council of the Royal Sanitary Institute at intervals of three years, the funds being provided by the legacy left by the late Henry Saxon Snell (Fellow of the Institute).

The Prize will consist of fifty guineas and the silver medal of the Institute, and is offered in the year 1915 for an Essay on "Suggestions for Improvements in the Sanitary Arrangements and Appliances suitable on board ship for (a) Passengers and crew. (b) Cattle and other live stock."

Attention should be given to the following points:—(1) Ventilation. There should be perfect and even ventilation of small places without a draught, easily regulated and adaptable for extremes of climate. The entry of sea water should be obviated. (2) Heating and Cooling. This may be combined with No. 1. (3) Sanitary Conveniences. Urinals, etc. These in the case of ships' crews should be suitable for rough usage. The pans or troughs should not be liable to be soiled. It should be borne in mind that the ship is liable to considerable movement in a heavy sea way, and spilling of contents of closet pans is to be avoided.

(4) Water Supply. Filters, condensers, aëration and cooling plant, storage, ballast tanks, etc. Baths and flushing tanks for closets. A sufficient flush of water should always be available, either at sea or in port, and independent of the working of the ship's engines. (5) Sleeping Quarters. Attention should be paid to the arrangement of sleeping bunks, so as to increase the available amount of cubic and superficial space, e.g., by folding up or other means. They should be so constructed as not to harbour insects, nor to interfere with lighting and ventilation. (6) Store and Food Rooms. Should be rat-proof, and ventilated. (7) The ventilation and regulation of temperature in the space devoted to cattle and other live stock, chiefly horses, cattle, and sheep; construction of stalls; drainage and facilities for removal of dung. The arrangements suggested should apply to both permanent and temporary occupation. It is essential that the important wishes of the ship owner shall be considered.

General Conditions.

1. The Essay to consist of not more than 5,000 words, to be type-written on foolscap, one side only, and to be illustrated by drawings or sketches. General drawings or sketches to be on a scale of 1-10 inch to 1 foot, and drawings of details to be on a scale of ½ inch to 1 foot, or real size.

2. Two Competitors of different professions or crafts may join in sending in an Essay and Drawings.

3. Essays must be delivered on or before November 1, 1915, addressed to the Secretary of the Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.

4. The Essays are to be submitted without the name of the Competitor, but with a motto legibly marked on the right hand lower angle of the first sheet: and to be accompanied by a letter containing the Competitor's name and address, which is to be enclosed in an envelope sealed with a blank seal, and having on the outside "The Henry Saxon Snell Prize" and the same motto as that attached to the work submitted. The Essay and sealed envelope must be enclosed in another envelope, bearing the words "Henry Saxon Snell Prize" and the Competitor's motto at the right hand lower angle, and must be directed to the Secretary of the Royal Sanitary Institute.

5. Should none of the Essays be considered of sufficient merit or importance to deserve the Prize offered, the Council reserve the right of withholding the award.

6. In the event of two Essays being of equal merit, the Prize may be divided.

7. The Essay or Essays to which the Prize is awarded are to become the property of the Institute.

Should the Council decide to publish the Essay or Essays to which the Prize is awarded, notice will be given to the Competitor or Competitors in order that patent rights may be secured, if desired, for any of the appliances mentioned in the Essay or Essays.

8. The carriage of the Essays to and from the Office of the Institute, and all expenses incidental thereto, must be paid by the Competitor. Unsuccessful Essays will be returned on application, on the production of a formal demand within a period to be specified after the close of the competition.

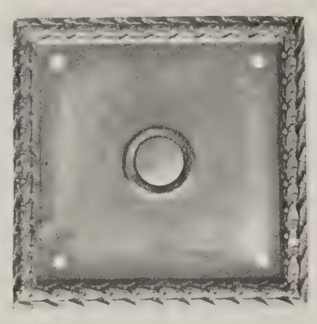
9. Due care will be taken of all Essays, but the Institute will not be responsible for any loss of, or damage to them while they remain in its keeping.

Communications should be addressed to Mr. E. White Wallis, Secretary, 90, Buckingham Palace Road, London, S.W.

TRADE AND CRAFT.

A Practical Exhibit of Brassfoundry.

While the merit of a well-illustrated catalogue has long been recognised, it is obvious that in selecting articles for the equipment of buildings there is nothing so satisfactory as a personal examination of the actual objects, for only in this way can a complete idea be obtained of the quality and finish of the work. In the ordinary course, however, it is not possible to see the manufacturer's entire stock, and it then becomes necessary to supplement the visit with a detailed study of the catalogue. This dual trouble has now been overcome by Messrs. Evered and Co., who have arranged a unique exhibit of high-class brassfoundry at their showrooms, Nos. 30-35, Drury Lane, W.C. The exhibit takes the form of a series of show-cases within which are long panels of polished oak, bearing samples of various specimens of door furniture, casement fittings, bell pushes, finger plates, letterbox plates, and other similar articles. These have been arranged in regular order, and above every specimen is a number. Below the panels are cards mounted in small frames for easy handling, and by reference to the numbers on these cards the cost of each specimen in various kinds of finishes—whether polished brass, antique brass, antique coppered, antique silvered or French grey—can at once be ascertained. There is an astonishing variety in the style of the exhibits, which display not only the most admirable quality in workmanship, but also a general excellence of design. Patterns of simple everyday description are given, as well as those of elaborate character, and thus the architect looking over the specimens is sure to find what he wants for his particular requirements. It is on this account especially that we would bring the exhibit to the notice of our readers. Messrs. Evered will be happy to show the exhibit to any architects who care to call at their premises, and we are sure they will be pleased with what they see there. The exhibit, indeed, opens up quite a new field as a practical collection of specimens of brassfoundry.



ELECTRIC BELL PUSH.

DRAWER HANDLE.

Carron Company's Electric Cookin Heating Appliances.

Messrs. Carron Company, whose
are at Carron, Stirlingshire, are
specialising on the important bran
their business that relates to electric
ing and heating appliances, and annc
in the foreward to a handsome
catalogue, that, having consid
extended and improved their plant,
are "in a position to cope with any de
in this class of goods."

Among the abundant illustrations
catalogue is one showing a kitchen
Royal Pavilion, Brighton, fitted
Carron electric ranges. It is notec
the Pavilion was erected as a
residence for King George IV.,
Prince of Wales, between 1784 and
and was eventually purchased, at a c
£53,000, by the Brighton Town
missioners. It is ordinarily used b
Corporation for public functions, and
for balls, receptions, concerts, and so
but just now it is rendering excellen
vice as a military hospital, in
capacity it will be admirably served
two fine Carron electric cooking r
which now flank the huge central ro
range. These Carron ranges are f
illustrated, and are fully describ
another part of the catalogue. Of
that denoted as "No. 330 Rang
described as being substantially constr
in fine cast-iron, bright black enar
with all facings ground and polished
consisting of two roasting and b
ovens, each 20 in. wide by 24 in. hi
18 in. deep inside, and one 40 in. wi
24 in. high by 18 in. deep inside
having two doors; double cased and p
throughout with heat-insulating mat
the inside of the ovens being lined
porcelain-enamelled steel sheets.
oven is fitted with hinged shelf
grids, tinned-iron drip-tray and meat-
all being readily removable for cle
The enamelled linings are fitted w
screw-heads on the surface, thus prev
chipping of the enamel during exp
and contraction, and offering a plai
face for cleaning. The heating ele
are removable by simply sliding o
cleaning, while the wiring is carri
cast-iron channels at the back of the
clear of all lagging, to main terminal
mounted on the back of the oven
wiring and terminals being r
accessible for inspection and rer
Each element, top and bottom, is
with two parallel circuits to pern
series parallel control, so that each
oven has six ranges of current consun
or control, and the 40-in. twelve ran
control. The other range fitted i
Brighton Pavilion kitchen is simil
materials, but of different dimensions
ranges of various shapes and propo
are described and illustrated in th
which shows also every other ki
cooking and heating apparatus and u
large and small. Many elegant desi
radiators and stoves are included;
altogether, the catalogue is empha
one that the architect will be gl
consult.

Two L.C.C. Promotions.

The London County Council, at
meeting last week, were recommen
appoint Mr. F. W. Hunt, chief as
valuer, to the vacant office of Val
the Council, at a salary of £1,500,
to £1,800, and Mr. Montague H. C
assistant clerk to the Council, t
deputy clerkship, at a salary of
increasing to £1,000.

ELECTRICAL NOTES.

The "Lowa" Regulating Switch.

have recently been issued describing the above switch,
been introduced by the Lowa Electrical Company, of
icery Lane, W.C. As the name implies, the switch
l to lower the light of lamps, and it does this effec-
efficiently, by also causing a saving in the electrical
sumed. It is easy enough to put an electrical resist-
ies with a current-consuming device which will reduce
it of watts taken by the apparatus, but will absorb
itself, so that no actual reduction takes place at all.
switch is so designed that the total watts absorbed,
150-watt lamp, are reduced from the nominal figure
tts on the first stop of the switch, and increased to
on the fifth stop, that is, the position preceding full
nce, there is a saving effected of from 12.2 to 79.1 per
a corresponding variation in the light of the lamp.
st switch is only about 3 in. in diameter, and works on
r principle. The resistance elements consist of small
phite held in position by end screws in a frame. It
dily seen that there is a large field of utility for
this kind—for lighting in sick rooms, hospitals, etc.
, in the larger sizes, for varying the speed of small
sewing machines, dental engines, and for heating
g appliances.

Benjamin Half-Watt Reflectors.

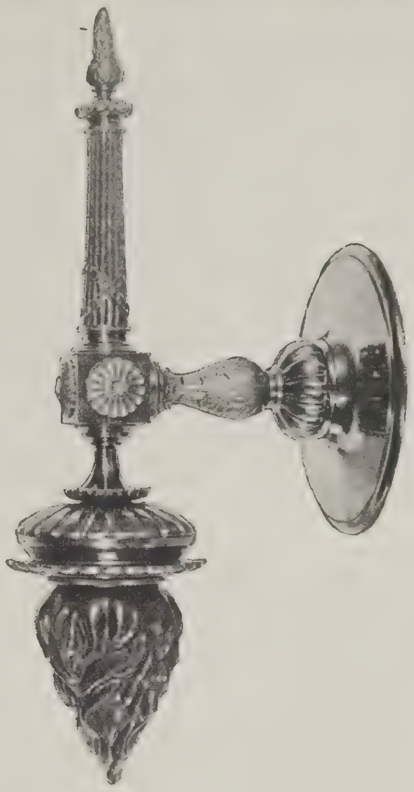
rm of reflector, embodying a novel design, has been
the market by the Benjamin Electric, Limited, 1a,
venue, E.C. This fitting, which is made of vitreous
steel, finished white inside and green outside, is pro-
a skeleton neck which affords ample ventilation for
nd thus allows the heat to escape. At the same time
in Goliath lampholder is easily accessible, and there
space for radiation of heat from its terminals. These
tain contacts of substantial design, and the lower
s a lamp grip. The reflectors are recommended for
mination where it is desired to obtain direct lighting
y distributed illumination. It is claimed that the
s a maximum light with a given lamp for a low con-
watts, whilst the shape ensures that the direct line
protected from the sight of the bare filament. The
are 12 in. high and 9½ in. in diameter.

A Domestic Water Steriliser.

the most interesting novelties of the year is an
of the above description, for sterilising water by
ch has just been introduced by Messrs. Ozonair,
96, Victoria Street, S.W. Some years ago a
paratus was made for the same purpose, but it proved
nd disappeared from the market. It is obvious that
ent intended to sterilise water must be capable of
all times effectively, because if it fails to do so at
s use and the confidence placed in it are a positive
is claimed by the makers of the Ozonair steriliser
pparatus is absolutely reliable and that it has only
uced after prolonged trials. The steriliser consists
metal box containing the necessary transformer,
tc., with a double bracket below supporting a
ay for holding the receptacle for the sterilised water.
feature of the apparatus is a patent switch which is
the pressure of the water over a range varying
and 50 lb. per square inch. This ensures that the
water tap is turned on the electrical circuit is closed,
impossible to obtain unsterilised water.

ratus is extremely simple in design, fixing, and
t is merely secured to the wall over a sink by means
s; the water supply is connected to the tap on the
nd two wires are brought to the terminals from the
ply. A hole in the swivelling tray, ending in a
affords an outlet for the water which may overflow
eptacle, and if the apparatus cannot be placed over
only necessary to connect a waste pipe to this vent.
mentioned, the turning on of the water tap actuates
switch, which causes current to flow through the
transformer connected to the ozoniser. The flow
sucks air through the air-inlet and the ozoniser, and
air thus produced mixes with the water and passes
, which reaches to the bottom of the jug or other
The latter is placed in position by the hand until
wivelled round, on which it rests. When the jug is
is moved away and the jug can then be withdrawn.
the water tap is turned off the current is also cut

iser only takes about 45 watts, weighs about 40 lb.,
nall dimensions. Its capacity is about 25 litres of
ater per hour. The treated water is entirely free
athogenic germs, and is bright, tasteless, and



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PUBLISHER'S ANNOUNCEMENT.

THE question of the cost of Advertising is governed entirely by the circulation of a publication. The prices for small Advertisements enumerated below are framed upon the lowest possible basis in order to allow the use of the columns of the Journal for "Wants," &c., at a figure well within the reach of everyone.

Advertisers are purchasing the circulation of a paper in buying space for their announcements, and we are able to announce that "The Weekly Nett Sale of The Architects' and Builders' Journal is larger than that of any other Architectural Journal."

Appointments Wanted.

4 lines (about 28 words) 1s. 6d.; 3 insertions, 3s.

ARCHITECT'S Assistant (24) Student R.I.B.A., desires engagement; 8 years' varied London experience; good draughtsman and colourist, also perspectives, etc.; excellent references.—Box 563.

ARCHITECT'S Assistant (34) offers services at home or office, evenings; specialist in domestic and school work; terms, 2s. per hour.—W., 15, Brockenhurst Gardens, Mill Hill, N.W. 550

BUILDER and Contractor's Manager or Confidential; draughtsman, quantities, estimates and designs, buyer; 20 years' varied experience; sober, industrious, willing.—Box 558.

BUILDER'S Manager and Estimator.—Advertiser with 25 years' experience in the building trade seeks re-engagement; thoroughly capable, energetic, and used to supervising contract jobbing or decorating work; thoroughly accustomed to taking off quantities measuring up, estimating, preparing plans and accounts and interviewing clients and architects; at liberty when required; good references.—Box 9169.

BUSINESS man (age 48), thirty years' experience in the building trade in all branches, can take position as supervisor; ten years' experience in France; road and sewers construction. Speciality in all paving; speak three languages.—Box 554.

EXPERIENCED General Foreman (carpenter by trade) wants job; capable and reliable; first-class references; used to War Office contracts.—A. B., 19, Evelyn Road, Walthamstow.

CLERK of Works desires appointment; extensive experience in all branches of the building trade; thoroughly practical and reliable; seven years' experience in school work; first-class references and testimonials.—W. Robbins, 83, Oxford Road, High Wycombe. 560

EXPERT designer prepares designs for plaster, metal, and woodwork; also designs for interior decoration; sketches, show drawings, and working details; terms moderate.—Apply Box 551.

GENERAL Foreman (first-class, all branches) seeks re-engagement; town or country; thoroughly practical, competent, capable, experienced.—A. B., 4, Havelock Road, West Kensington Park, London, W. 562

JUNIOR Assistant desires berth in architect's or builder's office; good draughtsman, careful and reliable; certificates for building construction; excellent references.—Box 553.

PROFESSIONAL man, not of a recruitable age, offers his services as substitute for the duration of the war to any other professional man wishing to join H.M. Forces.—A. Mason, c/o Cable, Stationer, Canon Street, Aberdare. 557

QUANTITIES, Specifications, Estimates prepared for any class of work at low charges; work measured and valued; disputed accounts adjusted; any distance.—Surveyor, 60, Parkhurst Road, N. 561

SHOP Foreman of Joiners seeks re-engagement; accurate, energetic, and reliable; smart manager of men and machines; good timekeeper; excellent testimonials.—Apply R. J. B., 6, Eland Road, Langwith Junction, near Mansfield.

TIMEKEEPER and Material Clerk, used to large jobs, seeks re-engagement; town or country; experienced and thoroughly reliable; good testimonials.—H. S., 12, E. Block, Peabody Estate, Herne Hill, S.E.

WORKING Foreman of Painters seeks employment; good decorator, colourist, and manager of men; town or suburbs; grainer; long and practical experience; terms moderate.—Foremain, 28, St. Mark's Road, Camberwell.

Office to Let.

THREE rooms in main thoroughfare, close to Ludgate Circus—Rent £95 inclusive. Excellent situation for showrooms of manufacturing firm.—Box 9202

Appointments Vacant.

6d. per line.

ARCHITECT with experience of marketing building specialities, and a practical knowledge of concrete; age between 30 and 40.—State age, experience and lowest salary expected, Jordan Brothers and Company, Derby.

ARCHITECTS' WAR COMMITTEE.

The Professional Employment Committee have under consideration certain schemes of work with a view to affording small temporary employment to architects who are without work in consequence of the war. Applications can only be considered from British architects dependent on their profession for a living, whose present difficulties are directly due to the war, and who are not eligible for military service. Applications should, in the first instance, be made to the Hon. Secretary of the Professional Employment Committee of the Architects' War Committee, 28, Bedford Square, W.C. 9168

JUNIOR wanted in Architect's and Surveyor's office.—Reply, stating age, experience, and salary required to Skues, 45, Lincoln's Inn Fields, W.C. 556

SHOPFITTER'S Setter-out.—Thoroughly experienced man required for setting-out of shopfronts and interior fittings; good wages paid and permanent post for a reliable man.—Apply Stanley Jones and Co., Ltd., 8, Gray's Inn Road, W.C.

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6d. per line.

TYPEWRITING; architects' and builders' specifications and reports a speciality; testimonials copied; send for price list; prompt, cheap, and accurate.—Address, "Typist," Typewriting Office, 65, Marsham Street, Westminster. 549

ARCHITECTS and Surveyors.—Partnerships.—Successions—or Amalgamations. For introductions to gentlemen with experience and capital available to purchase, or for particulars of partnerships and practices for sale, town or country, apply to Goodchilds, 29, Southampton Buildings, Chancery Lane, or 329, High Holborn, W.C. The Recognised Partnership Agents for the Profession. Mortgages negotiated.

SECOND-HAND Optical Mart
For the Purchase and Sale of
LEVELS, THEODOLITES, DRAWING INSTRS.
—Clarkson's, 338, High Holborn, London, W.C. (Opposite Gray's Inn Road).

BOOKS.—Books on Building Trades, Engineering, Educational, Literary, Technical, and all other subjects; second-hand at half prices; new at 25 per cent. discount; catalogue free; state wants; books sent on approval; books bought; best prices given.—W. and G. Foyle, 121-123, Charing Cross Road, London, W.C.

TO ARCHITECTS COMPETING. SCHEMES & ESTIMATES FOR ENGINEERING WORK

(Lighting, Heating, Ventilation, and Sanitation), and Architectural Metal Work, supplied free of charge of **STRODE & Co., Ltd.,** 48, Osnaburgh Street, London, N.W.

GLASS for merchants, picture-framers, builders, etc., 10 per cent. less than current market prices; can be inspected at our works.—C. Jennings and Co., Timber Merchants, General Woodworkers, 981, Pennywell Road, Bristol.

QUANTITIES written and printed equal to litho: 12 copies of a page 1s. 6d., and so on.—The Electric Writing Co., 7, Chapel Walk, Manchester. Tel. City 8004. 543

PIRANESI VOLUME WANTED. — Original copy wanted of volume of etchings of vases, etc., by Giovanni Battista Piranesi, published in 1778 under the title of "Vasi Candelabri Cippi Sarcofagi Tripodi Lucerne ed ornamenti Antichi."—Box 547.

Contracts Open.

9d. per line.

TO BUILDERS.

The Commissioners of His Majest
and Public Buildings are prepared
TENDERS for the REBUILDING of
NEEDLE STREET BRANCH POST
London, E.C.
Drawings, specification, and a co
conditions and form of Contract ma
on application to Mr. E. CROPPER, I
of Works, 22, Carlisle Place, Westmin
Bills of quantities and forms of Te
be obtained at the undermentioned a
payment of one guinea. The sum
will be returned to those persons wh
Tenders in conformity with the
specified below.
The Commissioners do not bind the
accept the lowest or any Tender.
Tenders must be delivered before
a.m. on THURSDAY, June 17, 1915,
to the SECRETARY, H.M. Office of W
Storey's Gate, London, S.W., and
"Tender for Threadneedle Street
building."
H.M. Office of Works, etc.
May 21, 1915.

PARISH OF LAMBETH.

BOARD OF GUARDIANS

The Guardians of the Poor of the
Lambeth hereby invite TENDERS
EXECUTION of WORK in connection
PAINTING and CLEANING of their
ARY and OFFICES at BROOK STR
nington, S.E.
Printed form of tender, with
annexed, together with specificatio
alone will be received), may be obtain
Office on any day (except Saturday
the hours of Ten and Five, upon pa
£2 in respect thereof, which will be
to each person sending in a bona-fi
The tenders, which must be sealed a
scribed "Tender for Painting at the
etc.," must be sent to the unders
placed in the box provided for their
in the office of the Clerk to the Gua
the tenderers or their representativ
they so desire, on or before TUES
8th proximo, and will be opened in
Room at 11 a.m. on the following
all persons tendering, or their a
agents, should be in attendance.
The Guardians do not pledge them
accept the lowest or any tender.

By order,
JAMES L. GOLDSPI
Clerk to the G

Guardians' Board Room and Office
Brook Street, Kennington Road,
May 19, 1915.

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9d. per line.

By Order of the Great Eastern
Company.—Messrs.
FULLER, HORSEY, SONS, &
will OFFER for SALE by AUCTION
on the PREMISES, at Canning
formerly the property of the Tha
works Company, on TUESDAY, JUN
at ELEVEN o'clock precisely, the
MATERIALS OF THE BUILDIN
including 100 tons cast-iron colu
stanchions, 700 tons steel girders (va
tons light rails, cast and wrought-ir
also 2,000 squares corrugated sheetin
EIGHT SHIPBUILDING DERRI
20 in. by 20 in. by 85 ft. high, each
28-ft. jibs, 80 fir standards, 16-in. bu
long, about
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and other timber comprised in
gantries, and sheds, 600 squares of s
rods of brickwork, underground elect
and other effects.
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THE
ARCHITECTS' & BUILDERS'
JOURNAL.

Wednesday, June 9, 1915. Volume XLI. No. 1066.

No. 138.

(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 9, 1915. **TOTHILL STREET, WESTMINSTER.** VOLUME 41. No. 1066.

EDITORIAL.

IT is gratifying to learn that exhibitors and buyers at the British Industries Fair which was held in the Royal Agricultural Hall, Islington, in May, have asked the Board of Trade (Commercial Intelligence Branch) to hold a similar fair next year, and that the Board will comply with the request. From this incident it is plain that at least a considerable section of the trading community, and at least one Government Department, have a tolerably clear notion of the strenuousness of the commercial war that is before us. It is not equally evident that the industrial and trading communities of this country have a full realisation that this is to be a life-and-death struggle into which we must throw all our energies and in which we must draw to the utmost on all our resources, and in which, above all, we must mobilise and handle our forces with scientific skill and to full economic effect.

* * * *

Paltry political dissensions, selfish strikes, and the lack of anything like a strong concerted movement for the consolidation of the Empire's commercial and industrial interests, are indications, positive and negative, that as yet we are not, as a nation, sufficiently awake to the gravity of the situation. We hear, perhaps, too much about the skill and thoroughness with which Germany has organised and perfected her stupendous military machinery, and certainly too little about the commercial and industrial foundations upon which it has been erected. It is not kept before the public mind with due insistency that but for her success against us in commercial competition, she might not have conceived, or, at any rate, could not have carried into the field, her ambition of conquering the world by force of arms, and thereafter of assuming complete control of the world's commerce.

* * * *

It cannot be too constantly borne in mind that the final victory of the Allied forces, no matter how complete, will be but the beginning of strife; for nothing can be more certain than that the more Germany loses in war, the more desperate will be her efforts to recover it in commerce. Already her agents, secret or avowed, are everywhere extraordinarily active, prosecuting this bloodless war with the same degree of ruthless unscrupulousness and cunning with which German naval and military operations have been misconducted. It is very certain that so mean, wily, and desperate an antagonist will adopt every conceivable means, fair or foul, of first robbing us of the fruits of victory, and of afterwards undermining the commercial prosperity that is essential to power. Like our soldiers and sailors, our traders must be prepared to encounter (the commercial equivalents of) the piratical torpedo and the poison gas. As we have already recorded, German trading organisations have deliberately (and in some instances quite successfully) plotted for the undermining and destruction of several of our industries, which, in the a
of State aid or private co-operation, were una
sustain the onslaught. It would be superflu
point the moral; but these ruined industries migh
been saved.

* * * *

These general remarks have a particular appli
When this enormously destructive war is over,
haps long before that consummation is reached,
dealers in the machinery and materials of const
will have to face German competition in its
insidious forms. In places in which German
will not dare to show their faces in the open
German interests will nevertheless be vig
pushed; for the German, being a past-master
terfuge and dissimulation, will have but little di
in adapting to the circumstances his old trick of
from a neutral country in an assumed
Obviously, after the cynical disregard of a
treaty, the wanton and deliberate destruction o
buildings, the inhuman atrocities revealed in the
report, the heartless murder of women and c
by air raids, the wholesale massacre of no
batants by the sinking of the "Lusitania," a
brave exploits with poison-gas and corrosive f
the front, a German name will not, outside Ge
possess the face-value of a sure passport to po
either in society or in business. But the Germ
not allow a little thing like that to interfere wit
He will cheerfully assume any name, nationa
local habitation his customers may happen
moment to prefer.

* * * *

It is just this habit of ready accommodation
the most marked characteristic of the German
If, for instance, a British machine of improved co
tion is making its way on the Continent, the
manufacturer will get hold of it, dissect it, and
similar machine of inferior materials at half th
He is very accommodating in other ways. He
his goods on extremely easy terms, and he w
enormous pains to meet with the utmost nic
most exacting requirements of the customer.
more anxious to give his clients what they wa
what he knows they ought to want. Exce
prompt delivery is another point in his gre
eminently profitable policy of accommodatio
this matter we shall have more to say hereafter;
the meantime we will only add that in order to
in the fierce competition for the world's mark
will be an immediate sequel to the war, the
trader must study to acquire much greater facili
he has hitherto displayed in the gentle art of ac
dation—general and particular. There is, dou
certain moral grandeur in the British trader's
attitude of sturdy indifference to the fads
sumers; but it must now go by the board.

Selden's cottage at Salvington having fallen
repair, fears for its safety have been expressed
ewspapers, and the matter has been brought to
ce of the Society for the Protection of Ancient
gs, with the effect that the interesting little
will no doubt be preserved. As Selden was
it in 1584, and it was even then respectably old,
lic that architects have delighted to sketch and
ather for its antiquity and quaintness than for
f beauty that can be attributed to it. Those
ve not seen it may like to know that it is within
lking distance of Worthing, the way leading
the ancient village of West Tarring, where
ill remain a few survivals of half-timbered work
tructed in the reign of King Stephen. West
Church, itself a monument of considerable
y, contains a brass to Selden (who, in accord-
ith the custom of those early days, was
ed there on the day following his birth, if we
er rightly), which was erected some few years
the Benchers of the Inner Temple, of which
became a member in 1604.

* * * *

ugh Selden achieved eminence as jurist, legal
y, and Oriental scholar, it is mainly in his
Talk" that he has survived for us—largely
recommendation of another of the few heroes
e Talk, Coleridge, who said of it that it con-
ore weighty bullion sense" than he "had ever
the same number of pages of any uninspired
Also its wit, wisdom, and humour are a little
oloured with after-dinner anecdotes that
sh editors of modern reprints do not invariably
e; but Selden had enjoyed the full-blooded
tion of Ben Jonson, who also must needs be
verely bowdlerised in the more recent editions.
"Titles of Honour" still holds much of its
; and the catalogue of the Arundel Marbles
drew up with the assistance of Patrick Young
hard James entitles him to the respect of all
ake delight in sculptured stone. Perhaps the
collection is better known under the title of
xford Marbles." They were brought from
reece, and Asia Minor by the Sir William
whom Pepys has so much paltry gossip, and
ore serious diarist John Evelyn, at the charges
as, Earl of Arundel, and were presented by
leman's grandson, the Hon. Henry Howard,
ds Duke of Norfolk, to the University of
n 1667.

* * * *

means in their entirety, however; for they
rst lodged in Arundel House, the site of which
ccupied by Arundel, Norfolk, Surrey, and
Streets, in the Strand, where, in the troubled
Charles the First and the Protectorate, some
rbles were broken, and others either stolen or
uilding material. Moreover, on the death of
he collection was dispersed; but the inscribed
and some of the statues were ultimately pre-
Oxford University. The most interesting
the collection is a large oblong slab of Parian
nown as the "Marmor Chronicon," because of
iption upon it of the chief events in Greece
period of 1318 years. Selden was the first to
l decipher some of the inscriptions on these
and his catalogue contains thirty-nine of them.
n Whitefriars in 1654, and was buried in the
hurch.

* * * *

ite possible that the National Civic Survey
entually numbered among the many great
ts that have developed fortuitously. But
fect of the great war in suddenly depriving
s of their normal opportunities of emolu-
e practical application of the idea might
n indefinitely deferred. Professor Patrick Geddes, in a series of papers read before the Sociological Society in 1904, foreshadowed, if he did not create, something in the nature of a new science of civics; but, more than a decade having been allowed to elapse without any really national attempt to put in practice some of the principles he laid down, it had begun to appear only too probable that his schemes would remain visionary. Then the happy thought came of translating them into action for the benefit of those architects whom the war had impoverished, and there seems to be no reason why the work thus inaugurated should not go on developing long after the exigency which started it has been forgotten. The Ordnance and geological surveys seem sempiternal, and are of unquestionable utility. A civic survey, comprehending a more vast array of data than either of these, should be no less permanent and should be of at least equal utility.

* * * *

Rather oddly, a correspondent, whose brief letter appears in a later page, has thought it worth while to thank us for saying a good word for Ruskin. This is really pathetic. We are quite well aware that there is a certain type of mind that thinks admiration for Ruskin "bad form," holds him as a Philistine, and sneers at him as "Early Victorian." Nor is this convention of disparagement wholly a revulsion from the enthusiasm of worship that made Ruskin in his day the Grand Panjandrum of Art. Architects were from the first his most caustic critics, partly by way of returning scorn for scorn, and partly because they were in a position to detect as mischievous fallacies some of the dogmas which the uninstructed laity eagerly received as inspired revelations of irrefragable truths.

* * * *

Ruskin's worst heresies can have done no harm that was not far outweighed by the good he did in making art interesting enough to be read about by thousands of innocent souls for whom he said the first and last word in that category. And it may be cheerfully admitted that, even for the well-grounded architect, Ruskin is often luminous in flashes—some of them false fires, but others the emanations of genius. Professor Lethaby's praise of him, not long ago, we took as a welcome sign that Ruskin is being at length seen by architects in his true perspective. He is no longer to be cursed, for he is no longer blindly worshipped. By the way, it is too generally forgotten that the common assumption that he was an inalienable Goth was expressly repudiated in his "Two Paths," where he says: "Perhaps one of the dullest and least justifiable mistakes which have yet been made about my writing is the supposition that I have attacked or despised Greek work. . . Of Greek work itself I have never spoken but with a reverence quite infinite; I name Phidias always in exactly the same tone with which I speak of Michael Angelo, Titian, and Dante." Ruskin had his lucid intervals.

THE RECONSTRUCTION OF BELGIUM.

IN our next issue we shall publish the first of a series of important articles on the reconstruction of Belgium. Written in collaboration by two Belgian men of affairs—the one a great contractor for public works, and the other the legal adviser of one of the chief associations of contractors in Belgium—these articles give a frank, clear, and complete exposition of the conditions that must be met in the great work of reconstruction. The guidance they afford as to financial arrangements, conditions of contract, peculiarities of practice, character of the materials and machinery that will be required, and nature of the competition that will be encountered, will prove of the utmost value to manufacturers and traders, as well as to professional men.

HERE AND THERE.

WANT of space last week necessitated the curtailing of my comment on the newly-formed Design and Industries Association before I had finished; so I take it up again. I would not wish to appear at variance with the feelings that have found expression in this Association. Its members are embarked on a good work. They see capable craftsmen listless for want of appreciation. They see the large dealer strutting with complete satisfaction in a showroom that is filled from end to end with rubbishy modern furniture or with mere reproductions of old models. They see the great British Public with its nose glued to the window-pane, intent on what it *likes*—and why should it not have its likes?—or anxious to buy just what others think it ought to buy. They see the machine at work everywhere, turning out badly what might be turned out passably or even admirably. "Although a machine-made thing can never be a work of art in the proper sense, there is no reason why it should not be good in a secondary order—shapely, smooth, strong, well fitting, useful; in fact, like a machine itself. Machine-work should show quite frankly that it is the child of the machine: it is the pretence and subterfuge of most machine-made things which make them disgusting." From all of which it will be noted that the Association is not a cranky coterie. It has talented men behind it, and those of my readers who are in sympathy with its aims, and desire to support them, cannot do better than write to the hon. secretary at 6, Queen-square, W.C., on the subject of membership. Members can subscribe what they like, but the minimum amount is half a guinea annually.

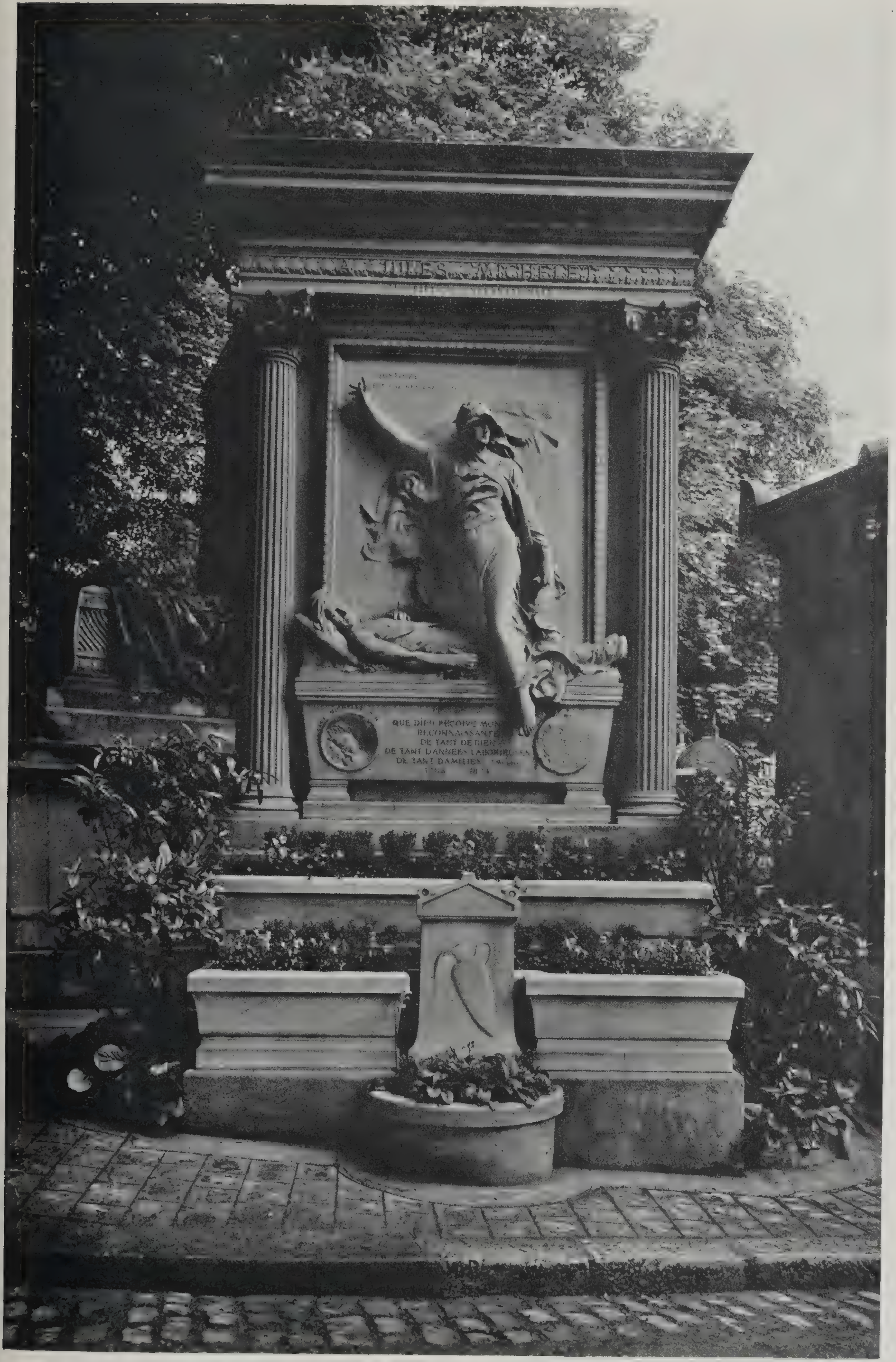
* * * *

One of the most commendable things about the Association is, I think, that it is intent on bringing the designer and the manufacturer into close relation with one another. It is a cardinal fault of our system of secondary education that the college and the school are so frequently out of touch with the commercial workshop. A man is intent on pattern designing in the studio, but knows nothing of the actual everyday working of the printing or fabricating machine. Another draws posters and is ignorant of the controlling factors in lithography done at contract prices. Or a student of structural engineering strives madly with intricate methods of calculation which are never dreamed of in practice. So that any attempt deserves support which aims at bringing together the designer and the producer. But when, in addition, you try to educate the public to a better level of appreciation, the task becomes complex to the point almost of hopelessness. It is better, in my opinion, to put the matter on a footing akin to ladies' fashions. The manufacturer may say that he can only sell what the public wants, "and, indeed, it must be a maddening problem," but English ladies have to do as Worth decrees and Paquin persuades, and something of the kind, for example, is possible to the big furniture dealers. Let their own taste be improved, and through them the taste of the Public can be improved. The Public will be told that *this* is the thing to have, and it will have it willingly, "and so home with much content." But the apostles of hand-work, and those who swear by "the mark of the hammer by which it was wrought," will have to give up a good deal of their creed. The machine dominates the position. It is not going to be bustled out by any amount of socialistic talk. We have got to accept it, and the best thing to do is to apply the machine to better types of design. It is just in this task that the designer and the manufacturer can collaborate with such happy results. A satisfactory model can be worked out between them, the machine can be put to repeat it, and in this way the Public will be able to get
a good thing at a moderate price. This, in fa
already being done, and the commercial success
method leads one to hope that it will be gen
adopted.

* * * *

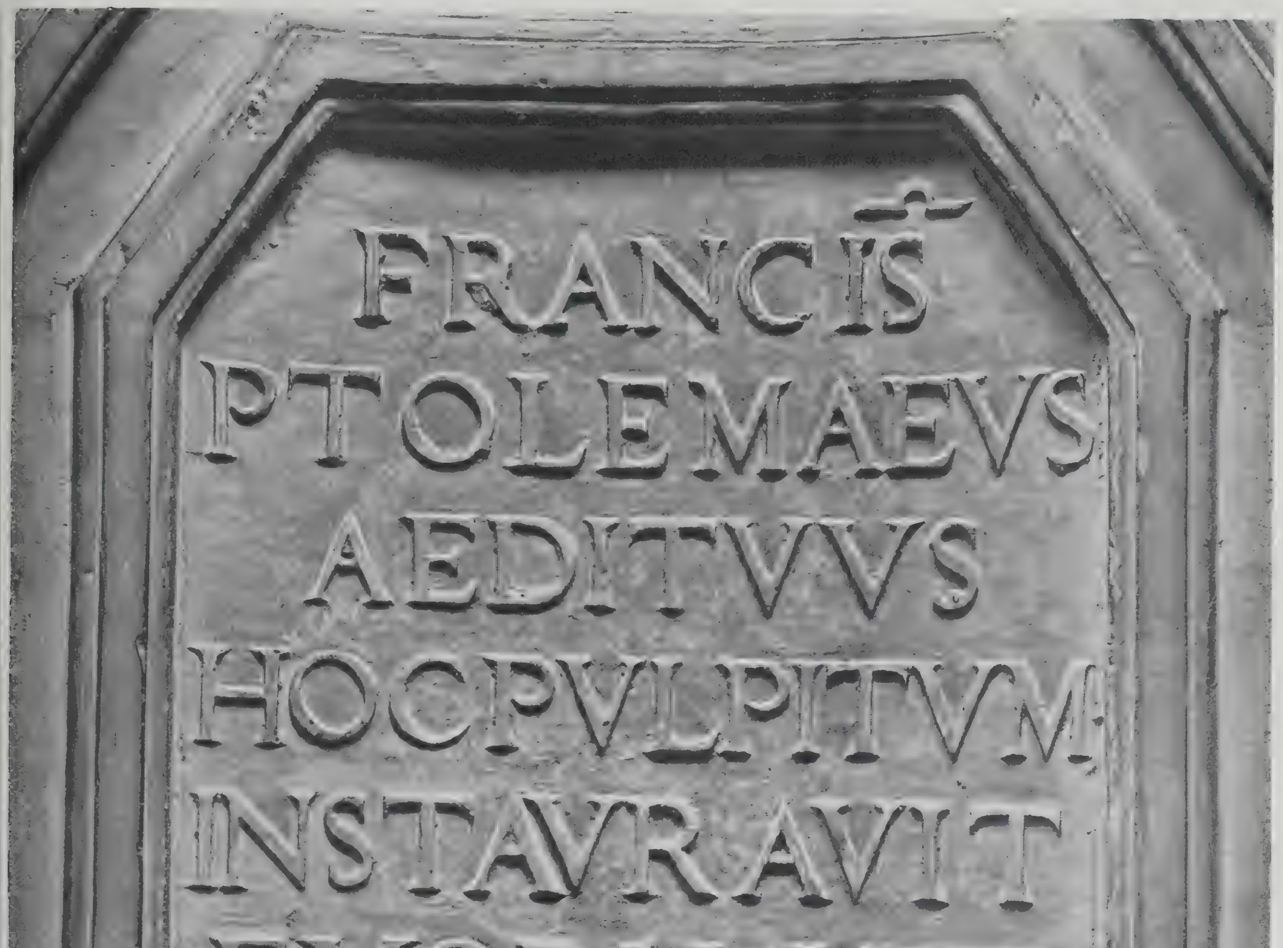
I take off my hat to Wren. I like the urban
the man no less than the simple clear quality
genius. I like, too, the penetrating practicality
lies behind all his actions. As there was a scie
mind so lofty in character that it equalled Newto
there was a spirit of rare invention permeating thr
out his architectural conceptions, so, too, there
matter-of-factness that could convince a mason
bricklayer, and a keen wit that could sum up a c
committee in a way that must have made some p
very uncomfortable. And certainly on the subj
materials there was no man of his day who knew
he was talking about better than Wren. Ther
letter wherein he gives us, in a few passages, th
of his experience in the practical business of bui
and at a time when we hear of high prices, deficien
supplies, and a falling off in workmanship, it is su
tive to note the comment on the state of thir
London more than two centuries ago. The letter
gives us this information was written to a frie
1708 on the subject of the further rebuildi
churches in the metropolis. In it Wren says:
true the mighty Demand for the hasty Works of
sands of Houses at once, after the Fire of Londo
the Frauds of those who built by the great, ha
debased the Value of Materials, that good bric
not to be now had, without greater Prices
formerly, and, indeed, if rightly made, will de
them; but Brick-makers spoil the Earth in the n
and hasty burning, till the bricks will hardly
Weight; though the Earth about London,
managed, will yield as good Brick as were the F
Bricks (which I have often found in the old Ru
the City), and will endure, in our Air, beyon
stone our Island affords; which, unless the Quar
near the Sea, are too dear for general Use; the
Portland, or Roch-abbey Stone; but these are no
out their Faults. The next Material is the
Chalk-lime is the constant Practice, which, well
with good Sand, is not amiss, though much worst
hard Stone-lime. The Vaulting of St. Paul's is
dering as hard as stone; it is composed of Cockl
lime well beaten with Sand; the more Labour
beating, the better and stronger the Mortar.
say nothing of Marble (though England, Scotla
Ireland, afford good, and of beautiful Colours), b
will prove too costly for our Purpose, unless for
pieces. In Windows and Doors Portland-ston
be used, with good Bricks, and Stone Quoyns.
Roofs, good Oak is certainly the best, because
bear some Negligence. The Churchwardens
may be defective in speedy mending Drips
usually whitewash the Church, and set up their l
but neglect to preserve the Roof over their Hea
must be allowed, that the Roof being more out o
is still more unminded. Next to Oak is good
Deal, which is a Timber of Length, and Ligh
makes excellent Work at first, but if neglect
speedily perish, especially if Gutters (which is a g
Fault in Builders) be made to run upon the P
Rafters, the Ruin may be sudden. Our Sea-ser
Oak, and the Wars in the North-sea, make Ti
present of excessive Price. I suppose 'ere l
must have recourse to the West-Indies, where
excellent Timber may be had for cutting and fe
Our Tiles are illmade, and our slate not good;
certainly the best and lightest Covering, and b
our own Growth and Manufacture and lasting,
perly laid, for many hundred Years, is without q
the most preferable; though I will not deny
excellent Tile may be made to be very durab
artisans are not yet instructed in it, and it is n
done to inform them."

UBI

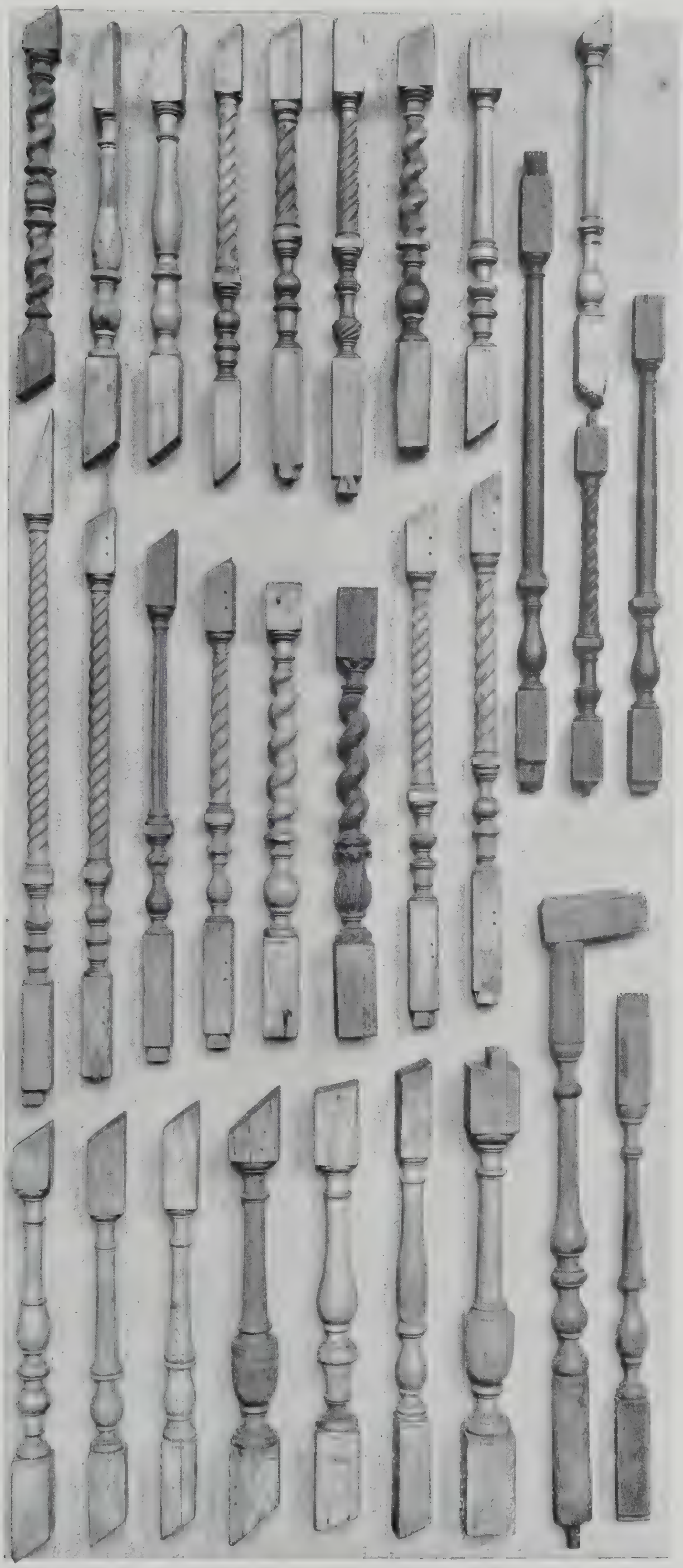


FRENCH MONUMENTS. XX.—MICHELET MONUMENT IN THE CEMETERY OF PÈRE LACHAISE, PARIS.

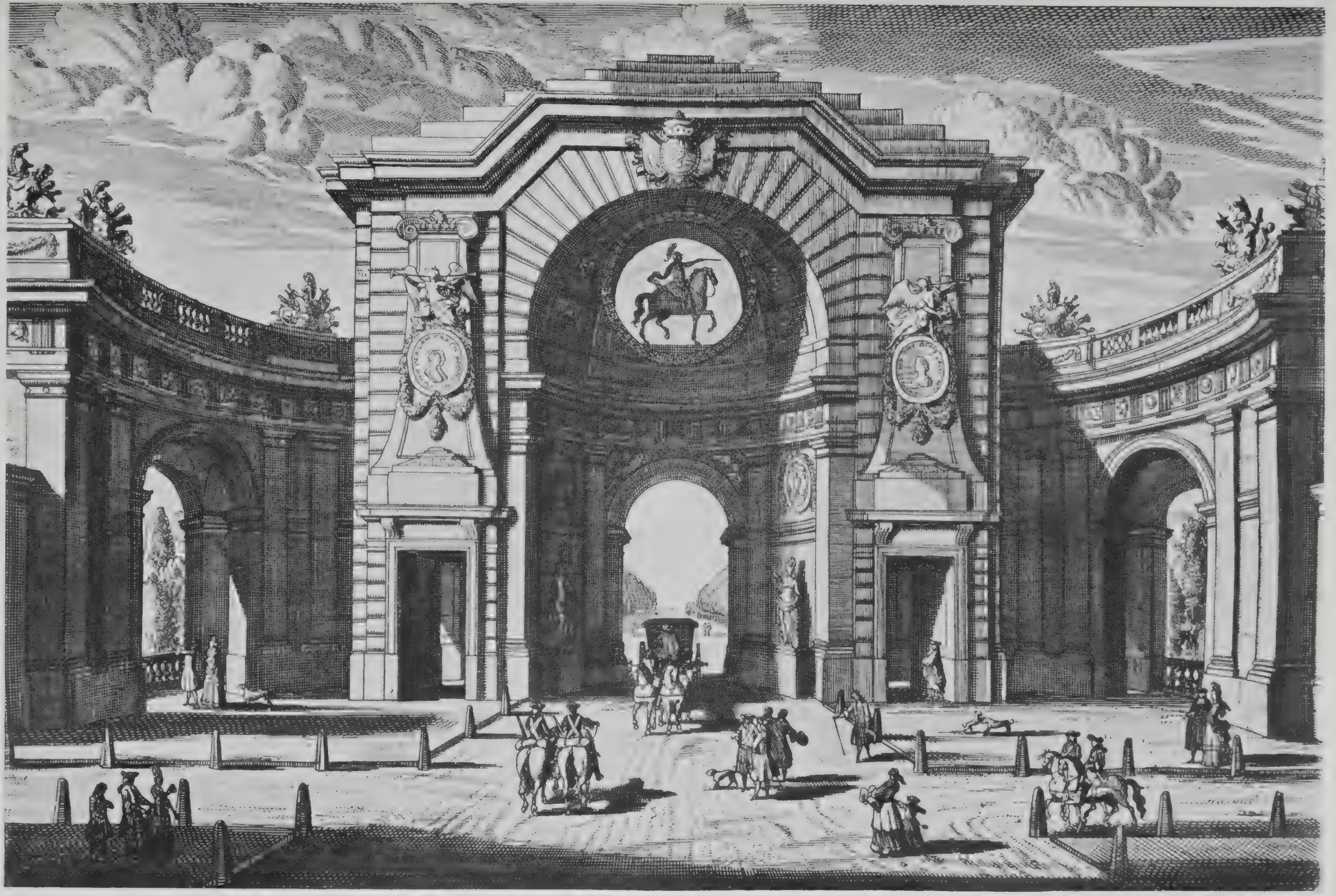
J. L. PASCAL, ARCHITECT.



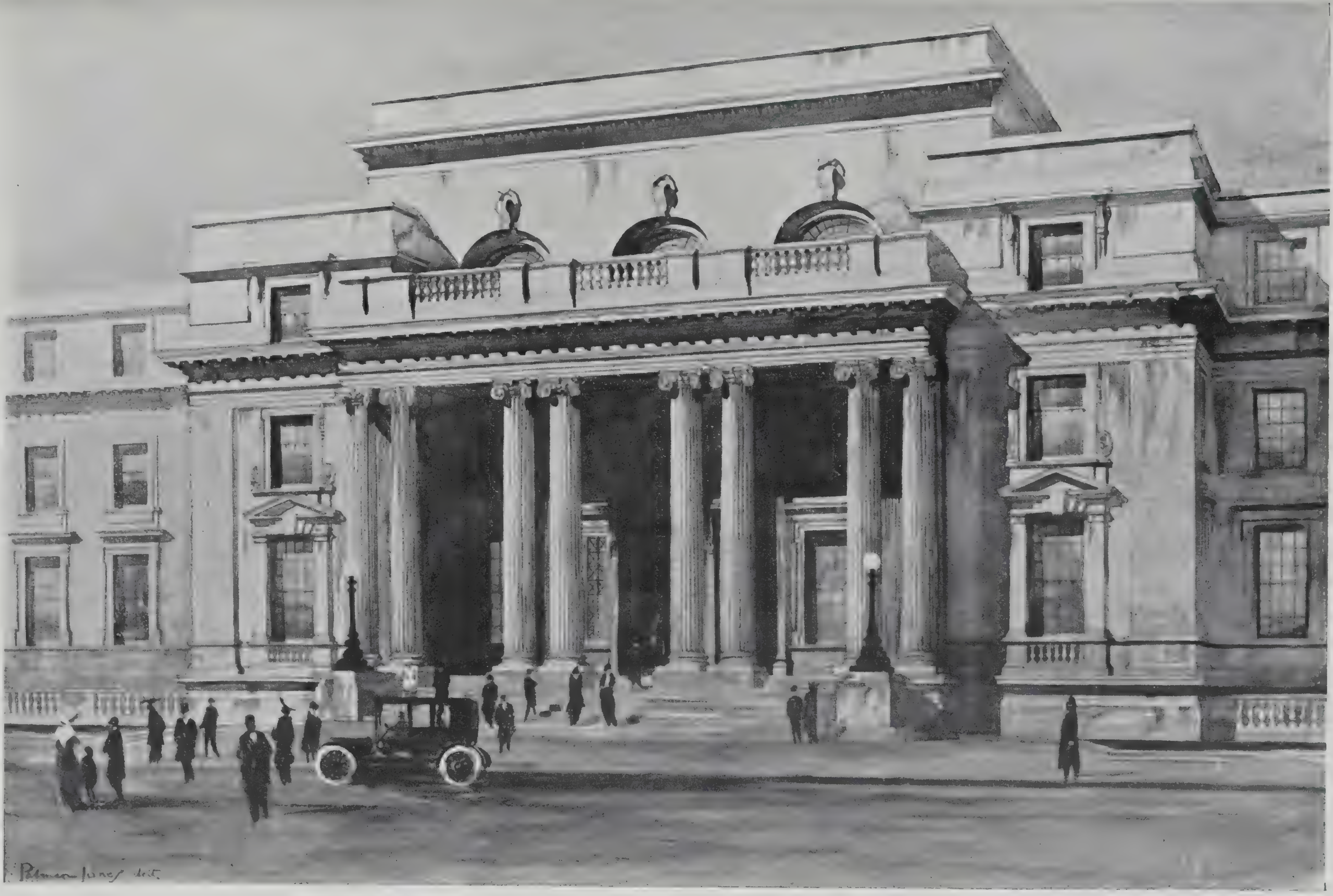
TABLETS AND INSCRIPTIONS. III.—INSCRIPTION ON PULPIT STAIRCASE IN SIENA CATHEDRAL. DATED 1543. BY BERNARDINO DI GIACOMO.



DETAILS OF CRAFTSMANSHIP. XXI.—GROUP OF BALUSTERS, IN THE VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.



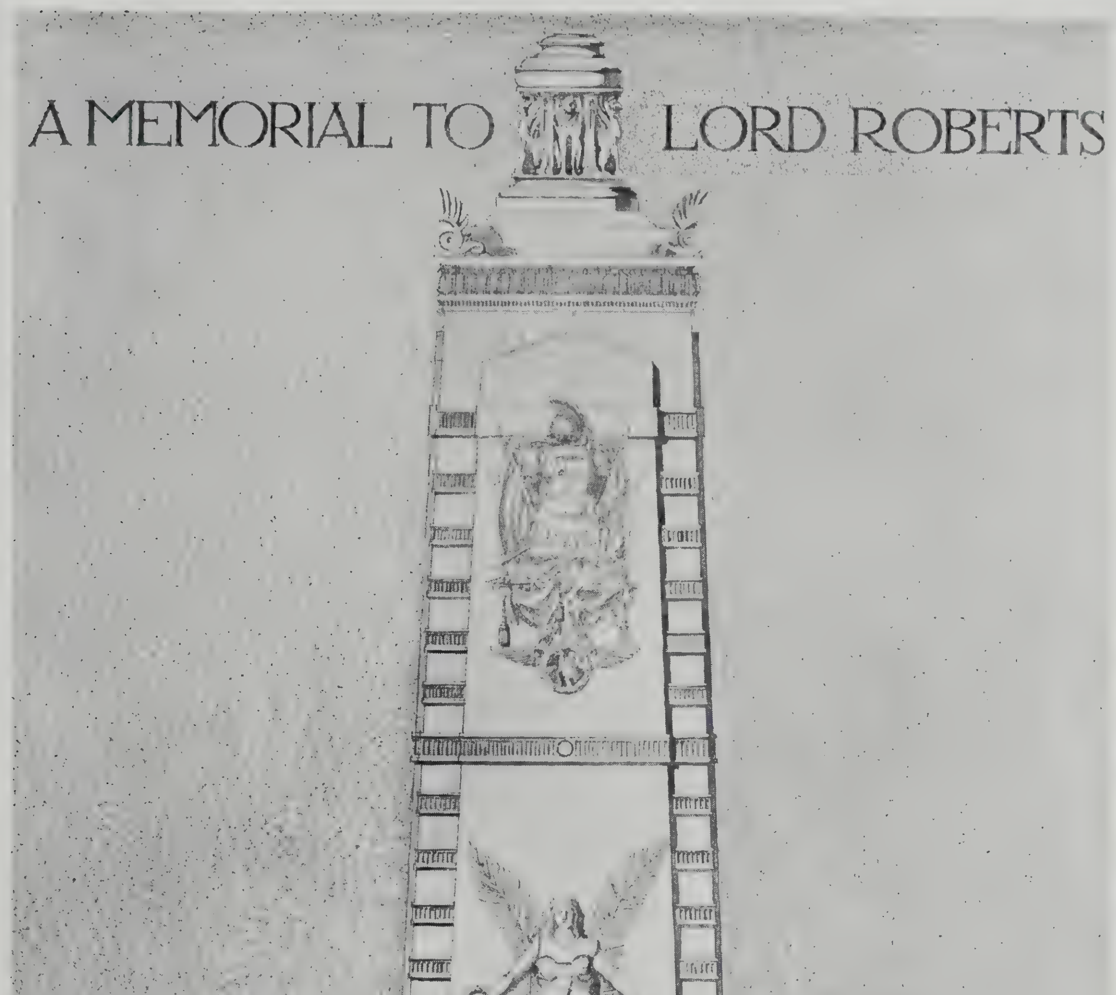
DESIGNS BY DANIEL MAROT. X.—A TRIUMPHAL ARCH.


Palmer Jones delt.

CURRENT ARCHITECTURE (SERIES II.). XXVI.—NEW GOVERNMENT BUILDING, CATHAYS PARK, CARDIFF: DETAIL OF MAIN ENTRANCE.

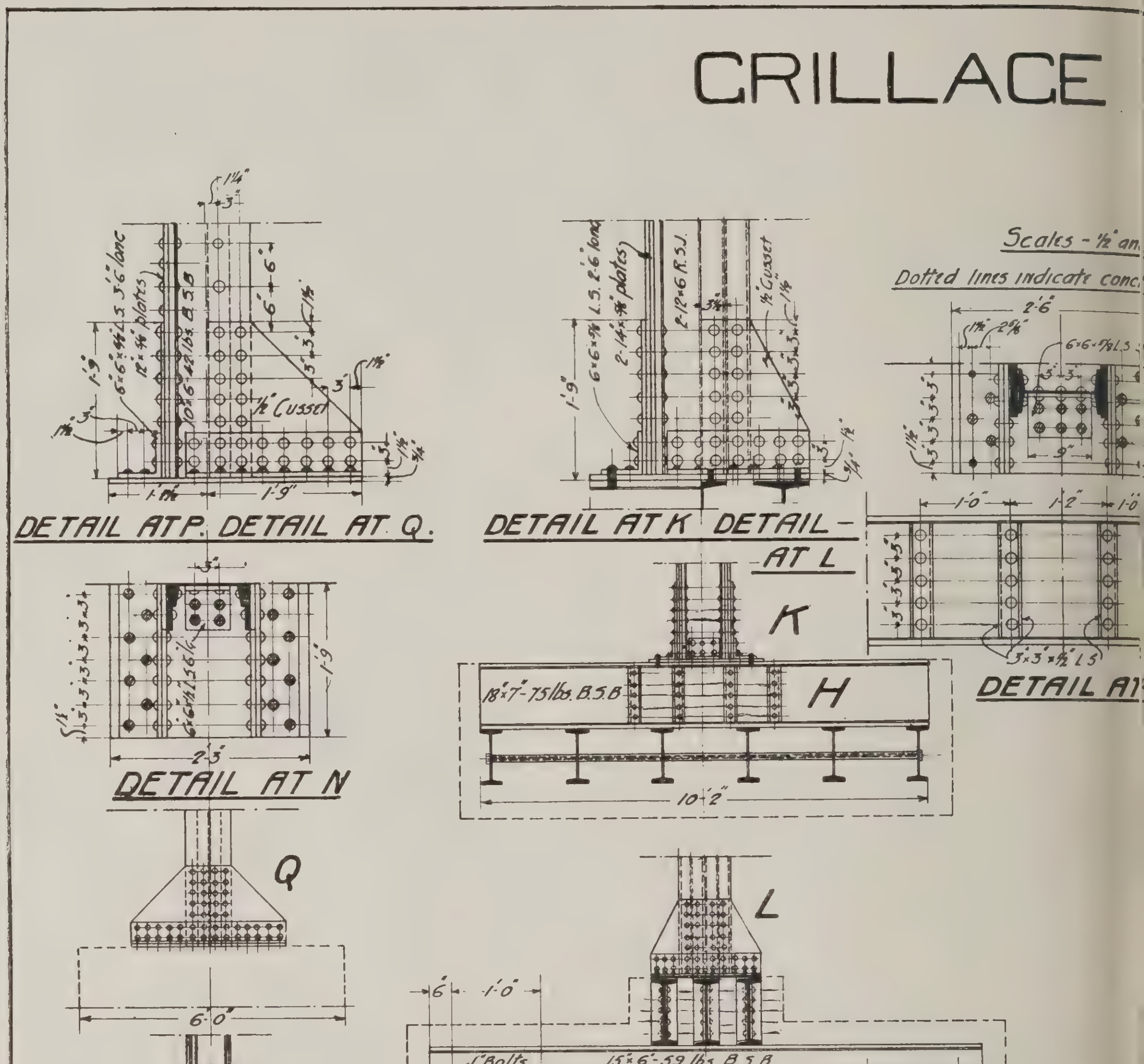
R. J. ALLISON, A.R.I.B.A., PRINCIPAL ARCHITECT, H.M. OFFICE OF WORKS.

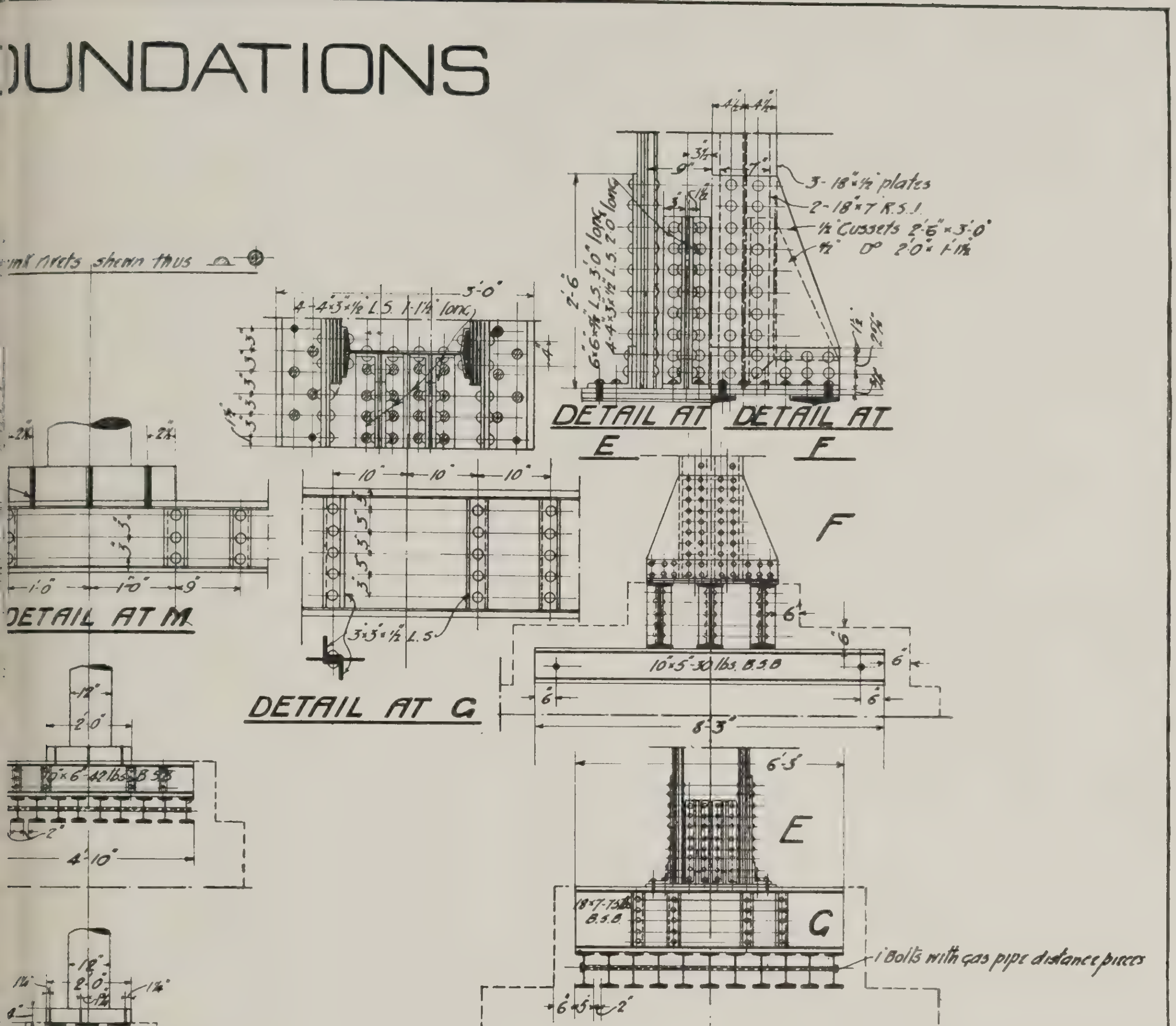
(Royal Academy Exhibition, 1915.)



STUDENTS' DRAWINGS. XLV.—DESIGN FOR MONUMENT TO LORD ROBERTS.

BY VINCENT HYLL.


CRILLACE
Scales - ½" an
Dotted lines indicate conc
DETAIL AT P. DETAIL AT Q.
½" Gusset
DETAIL AT K DETAIL - AT L
DETAIL AT N
DETAIL AT
K
H
18"×7"-75 lbs. B.S.B
10'-2"
Q
6'-0"
L
1" Bolts
15"×6"-59 lbs B.S.B
18'-6"
P
5'-0"
3'-9"
N
6'-0"
3'-6"
2'-3"
3'-9"
15"×6"
D°
18"×7"
1" Boltholes
2'-6"
11'-2"
1" Bolt with gas pipe distance pieces
13'-6"
STANCHEON A 90 TONS
STANCHEON B 250 TONS



TEEL-FRAME BUILDINGS.—IV.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE PLATES.

Michelet Monument in Père Lachaise.

IIS is one of the finest of modern French monuments, and it serves to illustrate how, in the hands of a master, the familiar elements of classical tecture can be transfused with new spirit. Michelet (1798-1874), who was a voluminous r on French history, is shown recumbent on a phagus base, over which passes serenely a magni- figure of Fame bearing in her left hand a scroll, indicating with her right hand the inscription, istoire est une resurrection." The whole is set ist an architectural background, and flanked by nns bearing a rich entablature. The only note of rd is struck by the shrubs and small plants around ase. These are mere gardener's trimmings, and detract from the sublimity of the monument.

nscription from Tomb in Siena Cathedral.

is inscription, dated 1543, is within a niche on the le staircase to the pulpit in Siena Cathedral. It executed by Bernardino di Giacomo, after the n of Bartolommeo Neroni, called Il Riccio.

Group of Balusters.

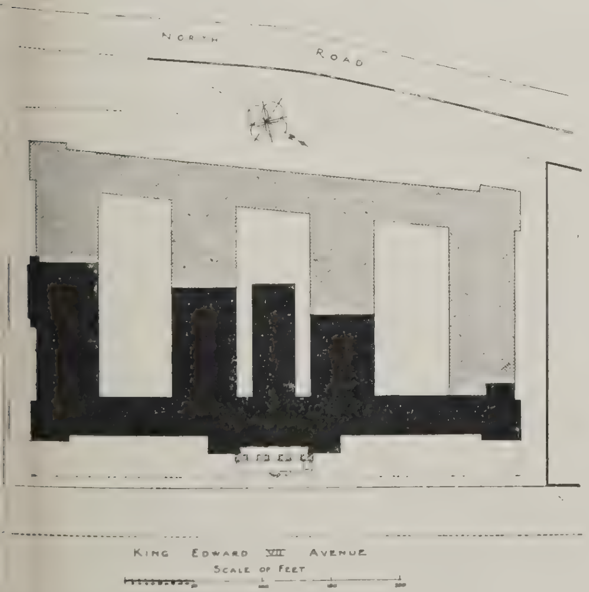
e design of balusters is fascinating, but modern ples often lack the qualities of elegance and ment which are displayed in old work. Hence group of English balusters, dating from the late iteenth and early eighteenth centuries, should of great interest and practical service. They are y of pine, though some are of oak, lime, and ash. originals can be seen in the Victoria and Albert um, South Kensington.

Triumphal Arch by Marot.

have given several designs for triumphal arches arot, and the example now shown exhibits again nerits and deficiencies of this architect. The ietting of the equestrian figure is a novel expedi- and though somewhat theatrical might justify on certain sites. The giant half-pilasters above ide openings are the most faulty element in the n.

Government Building, Cathays Park, Cardiff.

is building is for the Welsh Insurance Commis- nd Labour Exchange Divisional Office. We pub- l a plate of the façades in our issue of Novem- 1, 1914, and the detail of the main entrance now illustrated bears out the scholarly character of the design, which was indicated on the elevational drawings. Cathays Park already possesses several very noteworthy buildings, including the City Hall and Law Courts by Messrs. Lanchester and Rickards, the Registry by Messrs. Wills and Anderson, and the Glamorgan County Hall by Messrs. Harris and Moodie, while in course of erection are the National Museum of Wales by Messrs. Smith and Brewer, and the new Technical Institute by Messrs. Ivor Jones and Percy Thomas. To this civic group the building for the Welsh Insurance Commissioners will be a worthy addition. The front portion is being first proceeded with. It is shown solid on the block-plan below.



GOVERNMENT BUILDING, CATHAYS PARK, CARDIFF.
J. ALLISON, A.R.I.B.A., PRINCIPAL ARCHITECT,
H.M. OFFICE OF WORKS.

Design for a Monument to Lord Roberts.

This bold design by Mr. Vincent Hyll, of the Liverpool School of Architecture, is one of those recently approved by the Board of Architectural Education

Design for Grillage Foundations.

This is dealt with in detail in the article on the next page.

CORRESPONDENCE.

Historic Buildings in Belgium.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—At the present time, when public attention is so much directed to the destruction of historic buildings in Belgium, I wish to bring before your readers the fact that a committee has been appointed by the Council of the Royal Institute of British Architects to form a collection of records of these. The Council is of opinion that this collection must include all buildings of historic interest in Belgium, in view of the uncertain course of future events.

I now appeal to all those who possess photographs, measured drawings, sketches, old prints, plans of towns, illustrated guide-books to individual towns, to present these to the R.I.B.A., where they will be embodied in a branch of the library, with a special catalogue for reference. The collection when completed will be accessible at the same hours and under the same conditions as the rest of the library. It is hardly necessary to add that Belgian architects will be particularly welcome to the use of the collection.

The Council is especially anxious to obtain gifts of photographs taken by visitors to the smaller towns of Belgium, such as, by way of example, Nieuport and Furnes, where there are often churches and houses of great architectural interest which are not illustrated in standard books on the architecture of Belgium.

The Council feels that such a collection brought together in one institution would be of permanent value to all interested in the art of Belgium.

All gifts should be addressed to Mr. Martin Briggs, A.R.I.B.A., hon. secretary of the Belgian Architectural Records Sub-committee, at the Royal Institute of British Architects, 9, Conduit Street, W., by whom they will be acknowledged.

ERNEST NEWTON.
President R.I.B.A.

Ruskin and "Perversity."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I was glad to see, in your interesting note on St. Mark's, Venice, your reference to "The Stones of Venice" as "the noblest of architectural monographs," although I should not have called it a monograph, and I rather resent your reference to "Ruskinesque perversities." John Ruskin had the defects of his wonderful temperament, but that he was neither perverse nor obdurate is, I think, abundantly evident from the innumerable instances in which he reversed or revised his earlier opinions.

J. F. D.

EXAMPLES OF STRUCTURAL DESIGN. IV.—GRILLAGE FOUNDATIONS

BY PERCY J. WALDRAM, F.S.I.

(Continued from page 226, No. 1062.)

Design base and grillage foundations to four columns carrying the following loads at their base:—

A. Riveted stanchion compounded of 10″ × 6″ R.S.J. and 12″ × ⅝″ plates. Load 90 tons.

B. Riveted stanchion compounded of two 12″ × 6″ R.S.J.'s and 14″ × 1¼″ plates. Load 250 tons.

C. Solid steel circular column 12″ diameter. Load 210 tons.

D. Riveted stanchion compounded of two 18″ × 7″ R.S.J.'s and six 18″ × ½″ plates. Load 450 tons.

In all cases except "B" a deep bed of hard gravel, capable of taking a safe load of 4 tons per foot super exists at a depth of 5 feet below the bases, overlaid by *unreliable made ground.* In the case of stanchion B, trial holes have shown the gravel to be less compact, and the safe load is reduced to 2 tons per foot super.

The first point to be decided is whether it will be more economical to take the stanchions down to the firm foundation, designing the grillage to spread the load at 4 or 2 tons per foot super, or to place the grillages upon the top of blocks of concrete which would spread the load similarly, the grillage base merely delivering the load on to the concrete block at 12 tons per foot super. The latter course would require a much smaller grillage, and would also avoid increasing the bottom length of stanchion, which would almost certainly necessitate an increase in the stanchion section. Whether these advantages would compensate for the cost of the concrete depends principally upon the size of the block which is demanded by the permissible safe load on the subsoil. The size of square concrete blocks would be:—

A. $\frac{90}{4} = 22{\cdot}5$ sq. ft. say 4′ 9″ × 4′ 9″ × 4′ 6″ = 3·75 yards cube.

B. $\frac{250}{2} = 125{\cdot}0$ sq. ft. say 11′ 4″ × 11′ 4″ × 4′ 6″ = 21·3 yards cube.

C. $\frac{210}{4} = 52{\cdot}5$ sq. ft. say 7′ 3″ × 7′ 3″ × 4′ 6″ = 8·75 yards cube.

D. $\frac{450}{4} = 112{\cdot}5$ sq. ft. say 10′ 8″ × 10′ 8″ × 4′ 6″ = 18·8 yards cube.

The weight of 4′ 6″ run of column in each case would be:—

A. $\frac{4{\cdot}5 \times 95\frac{1}{2}\text{ lb.}}{112} = 3{\cdot}81$ cwt.

B. $\frac{4{\cdot}5 \times 229\frac{1}{2}\text{ lb.}}{112} = 9{\cdot}22$ cwt.

C. $\frac{4.5 \times 384{\cdot}6\text{ lb.}}{112} = 15{\cdot}45$ cwt.

D. $\frac{4{\cdot}5 \times 337\frac{1}{2}\text{ lb.}}{112} = 13{\cdot}55$ cwt.

Taking the cost of concrete at 15s. per yard cube and riveted stanchions at 15s. per cwt., it will be seen that in the case of stanchion C it is cheaper to bring the concrete up to the grillage rather than to take the stanchion down. In the case of stanchions A and D, the slight difference, apparently in favour of lengthening the stanchions, would be more than counterbalanced by the increase in section which would be entailed by increasing the bottom lengths and by the extra weight of the heavier grillages demanded, roughly ¾ per cent. of the load carried. Even in the case of stanchion B, comparative estimates of the weights of grillage and of the extra size of column demanded, show that it would be more expensive to take the grillage down to the gravel. But the saving of the extra load of the block on the ground, about 4 cwt. per foot super, was in this case the determining factor.

Bending Moments on Grillage Beams.

The bending moments on a tier of grillage beams are identical with those on any other base plate. Its task is to receive a load on a portion of its upper surface and to distribute it uniformly and safely over the whole of its lower surface.

Let B (Fig. 2) be the material imposing a load upon the upper surface of a tier, L the material on the under side, C the projection or distance between the edge of B and the edge of tier, and W the load and its equal and opposite reactions. L and B also indicate lineal dimensions per unit width of grillage.

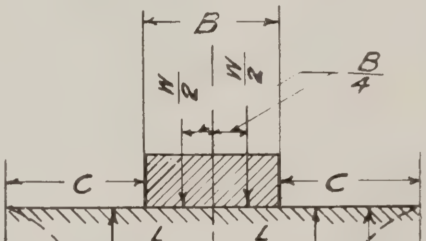


Fig. 2.

If the material L be considered as flexible whilst B is inflexible, the maximum bending moment will be at the edge of B, and for any unit width the load on the inverted cantilever C, multiplied by $\frac{C}{2}$ will amount to $\frac{CW}{L} \times \frac{C}{2} = \frac{C^2W}{2L}$ If the material B be completely flexible then the bending moment would be in the centre, and will consist of

$$\left(\frac{W}{2}\times\frac{L}{4}\right)-\left(\frac{W}{2}\times\frac{B}{4}\right)=\frac{WL}{8}-\frac{WB}{8}\text{ or }\frac{CW}{4}$$

Any rigidity in B tends to reduce the bending moment from $\frac{CW}{4}$ to $\frac{C^2W}{2L}$. The force required to bend unsupported

plates ½″ thick and over is very consi
able, and ⅝″ and ¾″ base plates stiff
by riveted gussets and angles are
much more so.

If the material L be regarded as
as in the case of concrete 4′ 0″ to
thick, it is difficult to conceive any b
ing at all on the tier. But on the
hand, it is obvious that material incap
of exercising a moment of resistanc
bending could not distribute the
Absolute stiffness in the grillage is
essential, for even if the material L
bend or compress and allow the cantil
C to deflect, the load would stil
properly distributed by the deflected
tilever C, so long as the bending mor
upon it were not severe enough to c
it to fail.

It should be observed that no differ
is made in the Act for permissible l
applied in the middle of a concrete b
in which position the loaded area has
substantial assistance of a sound ri
material all round it. Some experim
made by the writer showed that
crushing stress per square inch o
central area of the top face of a con
block was about double that which w
cause failure when applied all over
top face. The ratio would probably
somewhat with the ratio between
loaded and unloaded areas, but it i
doubtedly a substantial factor.

In view of this superior bearing cap
of the central parts of a block of con
and of the rigidity of well-desi
stanchion bases with thick base-pl
the bending moment on bottom tie
grillages bearing on thick block
concrete may be taken at $\frac{C^2W}{2L}$
allowance being made for the con
between the beams. In the u
tiers and when the thickness of
crete below the beams is thin, sa
to 9″, the bending moment shoul
taken at $\frac{CW}{4}$. If C be taken in feet
bending moment in inch-tons wi
$\frac{12CW}{4} = 3CW$, which must equal
moment of resistance = SMf. T
"f" at 7½ tons, the section mo
required will be S.M. = $\frac{3CW}{7{\cdot}5}$ =

Economic Selection of Joist Sectio

There is a wide variation betwee
efficiency of joists of different sectio
the cost in weight of metal of provid
given moment of resistance varies
stantially, the larger and deeper
being far more economical tha
smaller and lighter sections. For inst
a section modulus of 166 could be
vided equally well by one 20 × 7½
15 × 6, three 15 × 5, or four 1
joists, but the relative weight and c
each case would be, respectively,
118 lb., 126 lb., and 168 lb., per foo
of beam. When the span and loadi
a beam is fixed the selection of the
economical section to do the work
simple matter. But in grillage fo

it is possible not only to vary the
on but also to vary the span and
ng.

e task of spreading the load can be
rmed either by a few large joists or
veral smaller ones. The use of the
efficient large sections generally
to the reduction of unnecessary
nt, but not invariably. In any given
t may happen that the nearest size of
joist is unnecessarily large, and it
be more economical to use a greater
ber of smaller and less efficient
ons. Also, resistance to bending
ent is not always the only task
nded of a given joist; resistance to
and web-crumpling must always be
dered, and the lower tier joists, being
nedium through which the load is
sed on the concrete below them, must
nt a certain minimum underside
ce. Two short cantilevers presenting
surface might require to possess
een them only half the moment of
ance of one cantilever of double its
n; and to use in such a situation one
nt deep section instead of two some-
less efficient would be obviously
economy.

Web Crumpling.

important form of failure which
be guarded against in grillage beams
e crumpling of webs acting as
ns. The concrete between the
undoubtedly takes part of the load
action and thus relieves the webs,
is not customary to make any allow-
for this. It is also desirable to
l the grillage beam as bearing on
edges to the surface B, receiving the
on of the overhang at these points
erefore liable to fail by the diagonal
ession which would accompany such
r.

safe permissible reactions on
ard joists should be calculated and
ted. When these reactions are
d by the weight per foot run it will be
hat the relative efficiency of joists
st shear is approximately the same
sections, and does not increase in
eper sections as does the moment
stance per lb. of metal.

Web Stiffeners.

ed C.I. stiffeners are sometimes
out are not readily bolted up to form
ht fit which is essential to efficient
ng. The riveted angle stiffeners
are not only drawn tightly against
b by the cooling rivets, but they
ear tightly against the flanges, and
revent any lateral racking of the

Stanchion A.

load being 90 tons, a square base
, $\frac{90}{12} = 7'\ 6''$ super. will distribute
d sufficiently, say 3′ 6″ × 2′ 3″ the
e being made 6′ 0″ × 3′ 9″ = 22′ 6″

Stanchion B.

l 250 tons. The bottom tiers of
rillages are usually made square,
s is often necessary to avoid undue
rence with adjoining foundations.
alternative designs will however
pared :—

Three-tier grillage square, length
dle tier two-thirds bottom tier.

Three-tier grillage square, length
dle tier one-half bottom tier.

B3. Two-tier grillage square.

B4. Two-tier grillage oblong.

Three-Tier Square Grillage with Middle Tier 7′ 6″ wide.

Stanchion Base.

Unless stanchion bases are large enough to receive side gussets from the flanges, their size in the line of the stanchion webs is determined by the overall width of stanchion plus two gussets, plus two stout angles say 6″ wide, plus the permissible overhang each side for a $\frac{5}{8}''$ or $\frac{3}{4}''$ baseplate, say $1\frac{1}{2}''$. The width in this case will be $12'' + (1\frac{1}{4}'' + \frac{1}{2}'' + 6'' + 1\frac{1}{2}'')2 = 12'' + 18\frac{1}{2}''$, say 2′ 6″. The other dimensions of the baseplate may be greater than this if it be desired to lighten the grillage, but most contractors would prefer a small saving on the riveted base to even a large saving on grillage joists; and bases are usually made square. Baseplate say 2′ 6″ × 2′ 6″.

Upper Tier.

Under a 30″ base, three $7\frac{1}{2}''$ or four 6″ joists can be spaced with a minimum of 2″ between the flanges for the insertion of concrete, C = 2·5′. S.M. required of tier $= \frac{CW}{2{\cdot}5} = 2{\cdot}5 \times \frac{250}{2{\cdot}5} = 250$. Each of three joists must therefore have an S.M. of $83\frac{1}{3}$, say 15 × 6 — 59 lb. (SM = 83·8) = 177 lb. per foot run of tier. With four joists, S.M. = 62·5, say 14″ × 6″ — 46 lb. = 184 lb. per foot run. Less than three joists being undesirable, say three 15″ × 6″ — 59 lb. Reaction on each of three joists $= 83{\cdot}3 \times \frac{2{\cdot}5}{7{\cdot}5} = 28$ tons. Permissible reaction = 29·4. The margin being small, stiffeners may be put in.

Middle Tier.

$$C = \left(\frac{11'\ 4'' - 2'\ 6''}{2}\right) = 4'\ 5'' = 4.42'.$$

$$\text{Total SM} = \frac{4{\cdot}42 \times 250}{2{\cdot}5} = 442$$

4 joists SM = 110·5, 18″ × 7″ — 75 lb. = 127·7 = 300 lb. per ft. run of tier.

5 joists SM = 88·4, 16″ × 6″ — 62 lb. = 90·7 = 310 lb. per ft. run of tier.

6 joists SM = 73·7, 14″ × 6″ — 57 lb. = 76·1 = 342 lb. per ft. run of tier.

7 joists SM = 63·1, 14″ × 6″ — 46 lb. = 62·9 = 322 lb. per ft. run of tier.

Say 5 joists 16″ × 6″ — 62 lb.

Reaction = 50 tons $\times \frac{4{\cdot}42}{11{\cdot}33} = 19.6$

Permissible do. = 35·1

Bottom Tier.

$$C = \left(\frac{11'\ 4'' - 7'\ 6''}{2}\right) = 1'\ 11'' = 1{\cdot}92'$$

Total SM = 192

6 joists SM = 32, 12″ × 5″ — 32 lb. = 36·6 = 192 lb. per ft. run of tier.

7 joists SM = 27·4, 10″ × 5″ — 30 lb. = 29·1 = 210 lb. per ft. run of tier.

8 joists SM = 24·0, 10″ × 5″ — 30 lb. = 29·1 = 240 lb. per ft. run of tier.

9 joists SM = 21·3, 8″ × 5″ — 28 lb. = 22·3 = 252 lb. per ft. run of tier.

The concrete between the bottom tier joists must distribute the load over the ground. Theoretically, this can be done safely with quite wide spacings; but in view of the high relative stiffness of steel as compared with concrete, it is better to limit the distance between the joist flanges to, say, the depth of the concrete.

Say seven 10″ × 5″ — 30 lb.

Total weight = 7·5 × 177 = 1330
11·33 × 310 = 3500
11·33 × 210 = 2360
7190 = 3·2 tons

B2. Three-Tier Grillage with Middle Tier 5′ 8″ wide.

By similar calculations it will be found that altering the middle tier to 5′ 8″ wide makes practically no difference to the weight, which comes out to 7145 lb. The weight of a three-tier grillage is therefore about 1·28 per cent. of the load carried, and it is necessary to ascertain whether a two-tier grillage would not be lighter.

B3. Two-Tier Grillage Square.

Top Tier.

$$C = \left(\frac{11'\ 4'' - 2'\ 6''}{2}\right) = 4'\ 5''$$

Total SM = 441·6.

3 joists SM = 147·3, 20″ × $7\frac{1}{2}''$ — 89 lb. = 167·1 = 267 lb. per ft. run.

4 joists SM = 110·4, 18″ × 7″ — 75 lb. = 127·7 = 300 lb. per ft. run.

Say three joists 24″ × $7\frac{1}{2}''$ — 89 lb.

Bottom Tier.

C = 4′ 5″ as last.

Total SM = 441·6.

7 joists SM = 63·1, 14″ × 6″ — 57 lb. = 76·1 = 399 lbs. per ft. run of tier.

8 joists SM = 55·2, 15″ × 5″ — 42 lb. = 57·1 = 336 lbs. per ft. run of tier.

9 joists SM = 49·1, 12″ × 6″ — 44 lb. = 52·5 = 396 lb. per ft. run of tier.

Say 8 — 15″ × 5″ — 42 lb.

Total weight = 11·33 × (267 + 336 = 603 = 6800 lb. = 3·04 tons.

This is lighter than the three-tier grillage, but the proportions should be scrutinised to see that there is no uneconomical disposition of metal.

B4. Two-Tier Grillage Oblong.

Had the length of the top tier been greater, it would have been possible to use three of the efficient 18″ × 7″ joists to advantage. The load on each being $\frac{250}{3} = 83{\cdot}3$, the length of C which will demand an SM of 127·7, will be

$$\frac{127{\cdot}7 \times 2{\cdot}5}{83{\cdot}3} = 3{\cdot}83$$

The total length of top tier = (3·83 × 2) + 2·5 = 10·16, and the length of the bottom tier $= \frac{125{\cdot}0}{10{\cdot}16} = 12{\cdot}3$ say 10′ 2″ × 12′ 6″. Top tier three 18″ × 7″ — 75 lb. 10′ 2″ long.

Bottom Tier.

$$C = \left(\frac{12'\ 6'' - 2'\ 6''}{2}\right) = 5'\ 0''$$

Total SM = 500.

6 joists SM = 83·3, 15″ × 6″ — 59 lb. = 83·8 = 354 lb. per ft. run of tier.

7 joists SM = 71·2, 14″ × 6″ — 57 lb. = 76·1 = 399 lb. per ft. run of tier.

8 joists SM = 62·5, 14″ × 6″ — 46 lb. = 62·9 = 368 lb. per ft. run of tier.

9 joists SM = 55·5, 15″ × 5″ — 42 lb. = 57·1 = 378 lb. per ft. run of tier.

The distance between the flanges of six 6″ joists $= \frac{(10'\ 2'' - 3'\ 0'')}{5} = 1'\ 5''$

Depth of concrete 2′ 3″

Say six 15″ × 6″ — 59 lb. 12′ 6″ long.

Total weight 10·16 × 3 × 75 = 2320
12·5 × 354 = 4420
6740 = 3 tons

The ratio of weight to load $= \frac{3}{250} =$ 1·2 per cent.

Reaction on upper tier joists $= 83·3 \times \frac{3·83}{10·16} = 31$ tons.

Permissible reaction = 38·4. The margin is sufficient, but stiffeners would be advisable.

Reaction on lower tier joists $= \frac{41·6 \times 5}{12·5} = 16·7$.

Permissible reaction = 29·4.

Stanchion C.

The task of the grillage in this case is to distribute the load on to the top of the concrete block, which can receive 12 tons per foot super. It is generally assumed that the whole load is transmitted by the underside of the joist flanges, which therefore receive a reaction of 1 ton per inch in width for every foot in length.

If the bottom tier were considered as distributing the load on to the concrete surface below over its whole area, instead of merely through the strip of joist flange, both the projection and the sectional modulus of the lower flange joists could be reduced. Although the concrete bridge from joist to joist undoubtedly takes some of the upward reaction, the greater stiffness of the steel strips would cause the concrete immediately under them to be stressed more severely than that under the concrete bridge, and local injury might be caused. This can be more clearly visualised by imagining the concrete bridge replaced by a flush filling of indiarubber. An increase in the permissible stress on the centre of a large block is reasonable and logical, but in default of authoritative data on this point, and in view of the fact that the stress on the lower tier is probably higher towards the centre, it is better to provide sufficient material in the lower flanges to transmit the full load at an *average* stress of 12 tons per square foot.

The maximum bending moment on a lower tier joist of width "b" in inches due to projection of "C" feet may, for reasons already detailed, be taken at $\frac{bC \times 12C}{2}$ or $6bC^2$. The moment of resistance of the joist $= SM \times 7·5$, and the projection C which will cause a bending moment equal to the moment of resistance of the joist $= \sqrt{\frac{SM \times 7·5}{6b}}$. This projection and also the maximum projection permitted by the tendency of the web to fail under the shear involved, can be tabulated for all standard joists. The values of C used in the following calculations are taken from such a tabulation.

As short cantilevers carry load with less distress than long ones, the weight of the lower tier joists will depend as much upon their projection as upon their individual efficiency. The total weight of a grillage delivering load on to concrete at 12 tons depends upon the net result of several contrary factors. Lower tier joists of strong heavy section mean a few beams of considerable projection of high efficiency, but called upon to resist heavy bending moments. They involve in the upper tier joists of small projection, light loading, but low efficiency. If the lower tier joists be made lighter, then all these different factors are altered.

The most straightforward method of ascertaining what size of lower tier joist will be economically preferable is to calculate for different sizes and tabulate the results. Fortunately this, although tedious, does not involve much labour. The total requisite length of lower tier joist of width "b" being $\frac{W}{b}$, and the permissible projection "C" being determined by a table, the length, "L," and therefore the number of joists is readily fixed. For any given minimum space between the flanges, say 2″, the total length and projection of the upper tier joists is determined, and the section modulus demanded of them $\frac{CW}{2·5}$ is met by the selection of the most economical section. It will be seen that the total weight involved when tabulated falls generally to a minimum and then rises. As soon as this tendency is established the tabulation can be stopped.

Lower Tier.						Upper Tier.				
Joist.	Length.	C.	L.	No.	Wt.	L.	C.	S.M.	Joist.	Wt.
5 × 3 – 11	70′ 0″	1·47′	4·92	15	770	73	24½″	56·2	15 × 5 – 42	760
6 × 3 – 12	70′ 0″	1·67′	5·34	13	840	58	17″	39·6	10 × 6 – 42	610
7 × 4 – 16	52′ 6″	1·75′	5·5	10	840	58	17″	39·6	10 × 6 – 42	610
8 × 4 – 18	52′ 6″	2·09′	6·18	9	950	52	14″	32·7	12 × 5 – 32	416
9 × 4 – 21	52′ 6″	2·37′	6·74	8	1103	46	11½″	27·0	10 × 5 – 30	345
6 × 5 – 25	42′ 0″	1·90′	5·80	8	1050	54	15″	35·0	12 × 5 – 32	430

A 12″ × 5″ being a somewhat slender section, some weight may be wisely sacrificed to secure the sturdier 10″ × 6″ section in the top tier.

Say ten 7″ × 4″ 16 lb. in lower tier. Three 10″ × 6″—42 lb. upper tier.

Total weight $\frac{1450}{2240} = ·65$ tons

Ratio to load $= \frac{·65}{210} = ·31$ per cent.

Reaction on upper tier $= 70 \times \frac{17}{58} = 20·5$

Maximum permissible = 16.

Say four rows of stiffeners.

Grillage D.

450 tons. Base 3′ 0″ × 3′ 0″.

This grillage is similar to C, but carries a heavier load. Tabulating as before:

Lower Tier.						Upper Tier.				
Joist.	Length.	C.	L.	No.	Wt.	L.	C.	SM	Joist.	Wt.
5 × 3 – 11	150′ 0″	1·40′	5·80	26	1650	128	46″	162·0	4 – 20 × 7½	3230
6 × 3 – 12	150′ 0″	1·67′	6·34	24	1800	116	40″	150·0	4 – 20 × 7½	3470
7 × 4 – 16	112′ 6″	1·6 ′	6·36	18	1810	106	35″	132·0	4 – 18 × 7	2660
8 × 4 – 18	112′ 6″	2·09′	7·18	16	2040	94	29″	144·0	3 – 20 × 7½	2130
9 × 4 – 21	112′ 6″	2·37′	7·74	15	2380	88	26″	130·0	3 – 20 × 7½	1960
6 × 5 – 25	90′ 0″	1·90′	6·80	14	2250	96	30″	150·0	3 – 20 × 7½	2140
8 × 5 – 28	90′ 0″	2·16′	7·32	13	2520	89	26½″	132·6	3 – 20 × 7½	1980
10 × 5 – 30	90′ 0″	2·70′	8·40	11	2700	75	19½″	97·5	3 – 18 × 7	1400
10 × 6 – 42	75′ 0″	2·67′	8·34	10	3150	78	21″	105·0	3 – 18 × 7	1470

Top Tier—Say three 18″ × 7″ –

Bottom Tier—Say eleven 10″ × 30 lb.

Total weight $\frac{4100}{2240} = 1·83$ tons = per cent. of weight carried.

Reaction on upper tier joists =

$150 \times \frac{19·5}{75} = 38·5$

Permissible reaction = 38·4 stiffeners are therefore necessary.

Stanchion Bases.

These are designed in accordance Sub-section 12 (c) of the Act, which lates that there shall be sufficient riv distribute the load through the guss the base plate, ⅞″ rivets being us all cases. Rivets between the stan and the gussets in single shear credited with a strength of 3·307 tons those through double angles are tak under double shear at 5·787 tons For solid columns, all sizes of base generally used are square with a se about twice the diameter "D" of h and a thickness of about $\frac{D}{2}$ up t When the base of a stanchion bears a grillage the latter is often consi as the legal base, and sufficient rive provided to transmit half the load baseplates.

(*To be continued.*)

[This important series of articles in our issue of April 14, with a disc of Compound Girders. The s article, on Riveted Plate Girders, ap ed on April 28, and the third, on R Stanchions under Eccentric Loa May 12. In the issue for May page xvii., the author replies to questions and comments on the in the issue of May 12.—Eds. A. and

BEAUTY THE LOGICAL EXPRESSION OF STRUCTURE.*

BY F. RADFORD SMITH.

HITECTURE is usually defined as
' the art of building beautifully";
tion that, whilst generally accepted,
od enough in its way, will not be the
or a little amplification. "The art
ding beautifully." No mention of
at purpose we are to build, nor of
nanner we are to build in. The art
lding—that is the first thing—to
The word "beautifully" merely
es a quality necessary to the build-
differentiate it from mere building
h. As long as we build in a beauti-
, then it does not matter whether we
ne or brick, wood or iron, tiles or
chalk or cheese—but it must be
ul. Thus we find that the word
ifully" expresses the crux of the
and so we come to the considera-
what constitutes beauty in a build-
That the beauty of a building or any
ork of art is chiefly dependent upon
gn is so obvious as to require no
on. The principles of all types of
are parallel, but, like parallels of
d, never converge to quite the same
Architecture is different from all
rms of art in a more or less marked
because it is chiefly functional in
er, whereas the others are chiefly
ive. The art of architecture is
because is possesses positive func-
nd its forms spring directly from
The degree of satisfaction to
any form attains is in direct
ship to the success with which that
presses its function. Thus it may
that the beauty of a building
upon the degree of the logical
on it exhibits of its functions, and
ness of a building depends upon the
eteness or absence of such logical
on.

g the ages in which our architec-
s been evolving, the governing
s of the proportion of form to
ave naturally come to be the better
od in exactly the degree to which
has developed.

nctive and Logical Criticism.

ism or appreciation of any form of
be of two kinds, namely, either
ve or the result of logical reasoning.
mple, in architecture a column is
support a weight, and without the
bove would be illogical, as it would
function. Hence, to appear
l, it must not only be shapely, but
actually appear to be doing the
hich it, in fact, does do. The
a large column supporting little
eight appears instinctively wrong,
n also be proved to be wrong by
easoning, because the column has
e function to perform proportion-
dimensions. This is why I affirm
itecture is chiefly a functional art,
the other arts are chiefly instinc-

ample, imagine an oil painting of
upporting the Universe. The
ce of the shape of a man produced
ent colours in the paint instinc-
ggests to us the figure's function;
aint that produces that suggestion
fact supporting anything. In fact,
has no positive function, unless it
f preserving the canvas it covers!
ase of an architectural feature,
the feature not only expresses a function, but it actually executes that function—otherwise its appearance is false. In the same class as painting falls music, because what positive function can a bar of music possibly possess? However well it may express a function, it cannot possess any function in the positive sense. So we see that, in common with engineering, architecture must be logically functional. The engineer, designing a steel bridge, places the various members where each has a function to perform, and designs each member according to the most economical method of accomplishing that function, but he does not intentionally endeavour to proportion its form in a beautiful way. Notwithstanding the lack of any intentional aim for beauty, however, many engineering works might be classed as architecture, because of their logical expression of function they stand before us as beauty unadorned. From this we may deduce the inference that the more utilitarian a structure is the more logically expressive of function will it be, and the less of instinctive art will it possess. Thus, in a warehouse we expect (and generally find) the most frank admission of the function of the parts, unadorned by any conventional forms. So, in a painting of still life, we expect (and generally find) that which instinctively suggests in the simplest manner the forms of apples and grapes. In the more advanced types of pictorial art, however, we find the instinct appealed to by the conventional use of organic forms, which, during the ages of evolution, have come to possess conventional expression. For instance, the uncultivated mind can see nothing in such a work as Sim's "Wood Beyond the Wold" beyond a meaningless composition of acceptable forms. The atmosphere of the abstract spiritual state intended by the artist is lost to them.

The art of architecture is an exact parallel, because many of the forms we use daily are really nowadays conventionally used, and, though possessing positive function in the first case, now appeal chiefly to our instincts. Perhaps I should say, to educated instincts; for by the uneducated mind only the simpler forms are capable of being understood. But, whilst being a parallel, it is not the same, because, although in certain cases there is much of instinctive nature in architecture, the matters of greatest import to the art are positively functional, and even those which may be regarded as more or less instinctive nowadays in every case originated in positive function, and hence are not purely instinctive in character. Further, in the overwhelming proportion of modern buildings there is little scope for much of the instinctive side of the art.

Decoration and Architectural Motif.

Even in buildings whose nature is such that they are intended for such purposes as appeal chiefly to our senses, such as theatres, churches, etc., the greater part of any such appeal they make usually depends upon the sculptural and decorative adjuncts rather than on the architectural motifs employed. Of course, the purpose of the building dictates the general form in plan and mass, and thus decides to a great extent the type of construction to be employed; but that is mere building, and it is the visible expression of that construction in architectural terms that raises the work to one possessing any artistic merit.

I have just said that whilst the art of architecture is mainly functional, many of the terms now used to express it may be classed as instinctive art, but that, unlike art that is purely instinctive, all such terms in architecture had their origin in positive function, and hence can only be used logically when they accord with those general canons of the rational proportion of form to cause that have become essential with the evolution of the art.

In order to make the matter more clear, I propose that we very hurriedly glance over the chief outstanding examples comprising architectural tradition, and so endeavour to show that it is to the logical expression of function that the beauty of any work of architecture has owed its existence. Possibly, if we go back to the Tombs of Beni-Hasan we shall be able to find sufficient evidence, for or against my theory, to satisfy the most captious of critics. Here we see clearly how the forms employed have obviously been derived from a timber prototype. The chopping off of the prickly bark on the line of least resistance—that is, with the grain—is clearly evidenced in the many flat faces of the pillar which in turn helped to give us our flutes. The projecting pad at the top of the post which gave a better bearing to the ends of the two cross-beams it supports here possesses as much positive function as ever it did in timber, and even the projecting rafter feet have a positive constructional value almost as great as in the timber prototype.

The Logical Refinement of the Parthenon.

In the Parthenon we find the functions expressed in a manner which for logical refinement has never been excelled since. The triglyphs, resting on the main bearing beam, convincingly convey the idea of the ends of the cross joists, and the guttæ could not have been derived from anything but the tapered pegs that secured the ends from sliding. How different from the ones we sometimes see upside down on the upper side of the shoulder of a sunk panel. In such cases they can only express the ignorance of the person who put them there. The spaces between the triglyphs might have been left open, but that thin filling does act as a cross-brace, and what could be more natural than that such a space, obviously of subordinate value constructively, should be treated decoratively whilst the main beam is frankly plain unadulterated construction?

The realisation of the relative unimportance of the frieze is still further emphasised in the monument of Lysicrates, where, owing to the circular nature of the structure, triglyphs would not be so reasonable; the frieze is frankly acknowledged as a legitimate field for symbolic decoration.

The Use of the Arch.

But we must jump to the next phase, when the use of the arch as a means of covering a space opened up new possibilities to the Romans.

In the Pont du Gard we have the arch in the purest, crudest form as a constructional member. It supports the watercourses over a space with infinitely greater economy than could have been done with either a solid embankment or a beam-and-post construction. The Romans, ever quick to grasp anything which would assist them to achieve the desired result, immediately realised that if the stone at the springing be allowed to project, enormous economy could be effected in the

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s from a paper read before the Newport

temporary centering; hence the function of what in later examples becomes the moulded impost as employed in the arches of the Colosseum. Owing to centuries of tradition, the simple arch was, in common with most new features, looked upon as an engineering device, and hence the conventional orders had to be called in to satisfy the popular taste; but as they no longer form the chief means of support, their spacing becomes much more elastic, and their use more conventional. The desire for great space led the Romans to use the arch for all openings of such a width that a trabeated construction would be impracticable, and hence from the simple arched opening in a wall we find the principle extended to the whole ceiling, as is evidenced in the barrel vaults such as we see in the Temple of Diana. Even the panelling or coffering of the soffit possesses its function, for with a minimum of centering a succession of narrow arches could be built with the second course overlapping the first, and the cross-pieces are formed similarly to prevent the buckling sideways of the parallel arches when the concrete backing was thrown in. The possibilities of the use of pozzolana as a cementing material were quickly grasped by the Romans, who saw what economies of skilled labour might be effected by its use with rough unshaped scraps of stone as a monolithic backing to their masonry or brick soffit. The use of this material, while economical, resulted in an arresting in development of the true principles of the arch, because as its use became more general the construction came rapidly to lose all relation to the arch principle, although its form was still retained.

Thus we see that when a very large apartment was desired, the only lighting possible—with a barrel vault, namely, at each end—proved inadequate, and so arose the custom of driving arches in each direction at right angles to each other. With their concrete system of construction, this was easy of accomplishment, because the line of intersection mattered little, the concrete backing doing the most of the work.

The Dome Principle.

If we extend this idea to an octagonal-shaped room on plan, and then to a twelve-sided one, we cannot help seeing how the dome of the Pantheon was evolved.

I know there are those who claim that the dome was of much older origin than this, but I beg to disagree. In the Pantheon we see the ribs expressing their function logically, and we get the dome principle for the first time. In the Treasury at Atreius or the round-shaped roofs of Assyria we find nothing but round-shaped lintels. The principle is only the trabeated principle still, and they are no more domes constructively than is a cambered beam.

Recrudescence of the Arch.

As Rome gradually fell asleep, and as Christianity came to be the chief force at work in the great North-west, where there was no pozzolana, and men tried to imitate the works of Rome but with smaller stones, we find the arch comes back into its own, and the orders become more and more debased.

To imitate the barrel vaults of Rome in a purely masonry construction was not very difficult, but when the builders endeavoured to construct a cross vault their difficulties commenced; for how were they to manage that diagonal line of intersection? The obvious thing to do was to construct that first; and once that was accomplished, the remainder would not, perhaps, be impossible. To construct two arches diagonally across a square was not very difficult except in so far as a four-sided keystone common to both arches could be so considered. Now, this apparently slight alteration in method was going to revolutionise building for centuries. Once having built the wall arches and the diagonals, what could be more natural than to use them as ribs on which to rest the filling? This is exactly what happened, and again we find the logical expression of function in these ribs; for do not they actually do as they appear to do—bring down the weight on to isolated points of the wall? The semi-circular arch was the only one in use up to this time, and to this fact is due another feature. The diagonal of a square being longer than the side, it is obvious that the crown of the diagonal will be higher than the crown of the side arches; hence we see the early vaults were slightly domical in shape.

The realisation of the fact that the whole weight was supported by the ribs, and hence accumulated at certain points in the wall, led to the thickening out of the wall at these points, and so again we find the logical expression of function beginning to become evident exteriorly as in Worms Cathedral in the sprouting of the embryo buttresses. At the same time, it was realised that owing to the domical shape of the vault there developed considerable pressure sideways from the filling, and so by using a pointed arch for the cross arches it was found possible to raise the crown of the cross arches more nearly to that of the diagonals and so reduce this lateral pressure. Now in vaults of any considerable size it would be impossible to bridge the space from the diagonal rib to the side arches in one stone; hence this filling is arched, and the ribs are of necessity large and strong. By the use of the pointed arch, however, an intermediate rib could be inserted, lessening at once both the weights of the filling and the dimensions of the ribs. In order that the intermediate ribs on opposite sides should not collapse inwards, where their apices meet, it became necessary to insert a ridge-piece; and as all these members in different planes could not be properly mitred, we find the boss introduced. Thus we get two more beautiful features as the result of the frank expression of function.

The multiplication of ribs, and the more general use of the pointed arch, naturally tended to a constantly increasing lateral thrust, which directly manifested itself in the ever greater development of the buttress, and the continual diminishing of the wall between and the enlargement of the window area. Thus the development of the window tracery to carry the painted glass which was becoming so usual. So another most beautiful feature was developed as the expression of purpose.

This system, founded on the genuine arch principle combined with the buttress as an abutment, was systematically carried to the extreme limits the material would allow until we see, as in King's College Chapel, that the wall is practically a glass one, and the roof is supported on the end of thin piers acting as fulcrums between the thrust of the vaults and the reaction developed in the buttress.

Probably no finer exposition of Gothic construction has ever been made than when Professor Lethaby described it as "The system of hurling huge blocks of masonry high into the heavens and poising them there." When the system had been developed to its logical limits, and a desire sprang up for novelty, men introduced the bastard ribs in which the depravity of the Late Perpendicular became evident.

(*To be concluded.*)

SPECIAL LEGAL REPO

Light and Air Dispute.

The Earl of Dartrey and others
Grantway.

June 2. Chancery Division. Before Mr. Astbury.

This was an action by the E Dartrey, the Earl of Donoughmore others against Mr. B. G. Grantway, ing an injunction.

Mr. F. Russell, K.C., and M Neilson appeared for the plaintiffs, ar Cunliffe, K.C., and Mr. Uthwatt f defendant.

Mr. Russell said his clients we owners of premises, No. 10, Duke St. James's, which were now in th pation of the Thirty-third Degree Ancient and Accepted Rite of Maso England and Wales and the Co Plaintiffs were members of and repre that body. The defendant was the and occupier of the adjoining premis 8, Duke Street. The dispute betwe parties had reference to an attempt defendant to erect an outside iro escape staircase inside the area whi common to and on which the two p ties opened. Plaintiffs had compla that, and had succeeded in stoppi defendant completing the staircase interlocutory application to the cour cause of action on which the pl relied was three-fold lights, breach of ment, and the London Building Act statement of claim set forth th windows of the first, second, and floors of the house, which opened i area, were ancient lights, and pl claimed access and use of light a through these windows by presc from time immemorial, or in the a tive under the Prescription Act, 1832 lost grant. By an agreement of 1914, to which the defendant was a the plaintiffs agreed to allow the def to raise the height of 8, Duke Stree erect any new building on the site extent and in the manner shown plans annexed to the agreement sideration of the defendant facing th sides of the area of the house with glazed bricks or tiles, and cleanin once each year. The staircase com of would materially diminish the ri light and air of the plaintiffs, an or darken the glazed bricks defendant's side of the area and the light from being reflected windows of No. 10. The defend also, without notice to the plainti into and removed a length of 7 ft. coping of the party wall betw premises which were situated in th and was engaged in cutting a chas wall for the staircase, and in breac London Building Act, 1894, the de had not given notice to the plain to the occupiers of No. 10, Duke S any intention so to interfere with th wall. Counsel said everythin happily after that agreement until of this year, when the cutting into was discovered. Legal proceedin then taken.

Mr. Cunliffe admitted that plain certain ancient lights.

Mr. Russell said his case was defendant, after being allowed to building which would to some exte fere with the plaintiffs' lights, right to do anything which wo away from the reflecting surface the area. The defendant had al mitted a trespass in interfering

ithout complying with the pro-
of the London Building Act.
nce on behalf of plaintiffs was
by Mr. B. M. Johnson, F.S.I.,
in the firm of Messrs. Clutton, St.
Street, Westminster, surveyors to
ntiffs; Mr. A. N. Garrard, F.S.I.,
srs. Daniel Smith, Oakley, and
l, of Charles Street, St. James';
T. Merrett, assistant to Messrs.
; Mr. M. R. Mott, draughtsman
ssrs. Clutton, and Mr. J. C. F.
secretary to the plaintiff council.
secretary to the plaintiff council;
any expert witnesses had been
to give evidence on the other side.
Lordship said he should view the
s and staircase.
e following morning his Lordship
nference in private with counsel on
des, and a settlement between the
followed. The terms were not

OL'S NEW DRILL HALL.

l's new drill hall, which was
on June 2, has a frontage to Old
Street. The face of the middle
is constructed wholly of freestone,
ough the centre there is a broad en-
with folding gates, the lateral por-
eing of Pennant stone, with free-
ressing. The front building is de-
the use of the officers and non-
sioned officers, there being numer-
ample apartments for every pur-
nd the hall for drilling is behind.
emises, according to the "Bristol
and Mirror," contain the following
odation: On the ground floor, west
central archway, are placed the
and adjutant's office, with offices
f-sergeant and quartermaster, with
naster's stores in rear. Above this,
first floor, a suite of rooms for the
has been arranged, comprising
g-room, dining-room, billiard-
itchen, and offices. On the ground
ist of the central archway, the ser-
and corporals have their separate
illiard-room, and reading-rooms;
n the first floor, over same, a gym-
is provided, with a spacious re-
-room for the men. The basement
heating chamber, with large
r equipment and ammunition. At
d of the main front are houses for
ipation of the regimental sergeant-
nd caretaker. At the rear of this
is a drill yard, around which are
the armoury, wagon sheds, and
On the south side of this yard is
rance to the drill hall, which
s some 145 ft. long by 90 ft. in
Opening out of the drill hall is a
drill-room for recruits, some 43 ft.
and also a band practice room. In
of the drill hall, facing Jacob
a rifle range has been provided,
lat roof above, which it is intended
or instruction in signalling. An
cy exit from the south-west corner
ill hall, opening into Jacob Street,
been arranged. Surmounting the
ediment are placed two figures of
nx (the regimental crest). These
e gift of the Victoria Rooms
y, and formerly flanked the steps
up to the portico of the Victoria
The buildings were erected on
of the old Bristol Sugar Refinery,
covered practically an acre of
by Messrs. William Cowlin and
m the designs and under the
ndence of Messrs. W. S. Paul and
James, F.R.I.B.A., architects.

R.I.B.A. ELECTION RESULTS.

At the meeting of the Royal Institute of British Architects held at 9, Conduit Street, W., on Monday evening last, the election of officers and Council was announced as shown below:

THE NEWLY ELECTED COUNCIL.

President

ERNEST NEWTON, A.R.A.

Vice-Presidents.

SIR JOHN BURNET.
JOHN ALFRED GOTCH.
HENRY VAUGHAN LANCHESTER.
PAUL WATERHOUSE.

Hon. Secretary.

EDWARD GUY DAWBER.

Members of Council.

PROFESSOR S. D. ADSHEAD.
WALTER CAVE.
H. P. BURKE DOWNING.
WILLIAM CURTIS GREEN.
HENRY THOMAS HARE.
E. VINCENT HARRIS.
GERALD CALLCOTT HORSLEY.
JOHN JAMES JOASS.
ARTHUR KEEN.
DAVID BARCLAY NIVEN.
ALEXANDER NISBET PATERSON.
ANDREW NOBLE PRENTICE.
HARRY REDFERN.
A. E. RICHARDSON.
E. A. RICKARDS.
W. GILLBEE SCOTT.
H. D. SEARLES-WOOD.
PERCY SCOTT WORTHINGTON.

Associate Members of Council.

HORACE CUBITT.
WILLIAM ROBERT DAVIDGE.
LEONARD ROME GUTHRIE.
HERBERT SHEPHERD.
PHILIP EDWARD WEBB.
HERBERT ARTHUR WELCH.

Past Presidents.

REGINALD BLOMFIELD.
THOMAS EDWARD COLLCUTT.

Representatives of Allied Societies.

GRAHAM C. AWDRY, Bristol Soc. of A.
ROBERT BURNS DICK, Northern A.A.
F. B. DUNKERLEY, Manchester S. of A.
CHARLES KEMPSON, Leicester and Leics. Soc. of A.
ADAM F. WATSON, Sheffield Soc. of A.
JOHN WATSON, Glasgow Inst. of A.

Representative of the A.A.

HERBERT AUSTEN HALL.

THE OLD COUNCIL.

President.

ERNEST NEWTON, A.R.A.

Vice-Presidents.

A. W. S. CROSS, M.A.Cantab.
GEORGE HUBBARD, F.S.A.
H. V. LANCHESTER.
J. ALFRED GOTCH, F.S.A.

Hon. Secretary.

E. GUY DAWBER.

Members of Council.

PROFESSOR S. D. ADSHEAD, M.A.
T. EDWIN COOPER.
W. CURTIS GREEN.
HENRY T. HARE.
E. VINCENT HARRIS.
A. R. JEMMETT.
D. BARCLAY NIVEN.
ALEXANDER N. PATERSON, M.A.
SYDNEY PERKS, F.S.A.
C. H. B. QUENNELL.
HARRY REDFERN.
A. E. RICHARDSON.
W. GILLBEE SCOTT.
ERNEST R. E. SUTTON.
WALTER J. TAPPER.
PAUL WATERHOUSE, M.A.Oxon.
H. W. WILLS.
PERCY S. WORTHINGTON, M.A.

Associate-Members of Council.

ROBERT ATKINSON.
W. R. DAVIDGE.
L. ROME GUTHRIE.
HERBERT SHEPHERD.
S. DOUGLAS TOPLEY.
HERBERT A. WELCH.

Past Presidents.

REGINALD BLOMFIELD, R.A.
LEONARD STOKES.

Representatives of Allied Societies.

GRAHAM C. AWDRY, Bristol Soc. of A.
R. BURNS DICK, Northern A.A.
F. B. DUNKERLEY, Manchester S. of A.
GLENDINNING MOXHAM, South Wales Institute of Architects.
ADAM F. WATSON, Sheffield Soc. of A.
JOHN WATSON, Glasgow Ins. of A.

Representative of the A.A.

H. AUSTEN HALL.

New Fellows.

Robert Atkinson (London).
C. Lovett Gill (London).
C. W. Harris (Liverpool).
Laurence Hobson (Liverpool).
D. B. Hutton (Glasgow).
J. J. S. Naylor (London).
W. Campbell Oman (Singapore).
Frank Peck (London).
Horatio Porter (London).
H. A. Saul (London).
J. A. O. Allan* (Aberdeen).
Harold Baily* (London).
W. E. Carless* (Montreal).
S. N. Cooke* (Birmingham).
J. A. Stuart* (Birmingham).
T. L. Taylor* (Glasgow).

New Associates.

Patrick Abercrombie (Liverpool).
T. H. Barrow (London).
Habib Basta (London).
N. M. M. Bhownaggree (London).
E. F. Bothwell (Hong Kong).
D. A. Carmichael (Greenock).
W. R. Davison (Morpeth).
G. E. Francis (London).
Thomas George (Swindon).
B. R. Gribbon (Garforth, Leeds).
T. P. Jenkins (Swansea).
H. N. Jepson (Kingston-on-Thames).
E. A. L. Martyn (Redruth).
E. Meredith (Newbridge-on-Wye).
A. H. Owen (London).
S. G. Soper (London).
J. O. Thompson (Sheffield).
J. A. E. Toone (Melbourne).
H. S. Triscott (London).
C. T. Whiteley (Bradford).

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* Licentiates who passed examination qualifying for candidature as Fellows

COMPETITION.

Bromborough Port Estate Cottages.

The awards of the assessor (Mr. Geoffry Lucas, F.R.I.B.A.) in this competition are as follows:—Five Cottages: Messrs. Gustave Agate and Halliday and Paterson, Manchester; Messrs. Cleland and Hayward, Wolverhampton; Mr. W. Fullerton, Woodford; Mr. Frank H. Bromhead, Knebworth. Seven Cottages: Messrs. Cleland and Hayward, Wolverhampton; Messrs. Gustave Agate and Halliday and Paterson, Manchester; Mr. E. G. Theakston, London. Three Cottages and Shops: Messrs. Morter and Dobie, Liverpool. Seven Cottages and Shop: Mr. E. G. Theakston, London. Five Cottages and Shop: No award. The drawings were exhibited at the Auditorium, Port Sunlight, between 10 a.m. and 4 p.m. on Tuesday and Wednesday, June 8 and 9.

TRADE AND CRAFT.

The Anti-German Riots.

Messrs. John Tann, Ltd., "Reliance" safe manufacturers, 117, Newgate Street, E.C., have received from a client—a jeweller in the East End, a testimonial from which the following extracts are given: "You will be interested to hear of the important part one of your 'Commercial' safes has played in the recent anti-German riots in the East End. Among the other shops, ours was attacked in mistake for a German establishment, and the mob, after clearing the shop windows and show-cases of watches and jewellery, carried off the clocks and every article of value; they then turned their attention to the safe. This, although it weighed 7 cwt., was actually carried out bodily by a gang of burly ruffians, who crashed it down on the pavement time after time, but without effect. They then brought hammers and chisels into play, but all in vain. An inferior safe must have yielded to such savage attacks, but they could make no impression on yours, although they smashed off the hinges and handles, and, in fact, made every possible effort to open it. It is now in our possession with its valuable contents intact, and only requires reinstating to be as serviceable as ever." The name and address of the jeweller were sent to us by Messrs. Tann, but, for fairly obvious reasons, we omit them.

OBITUARY.

Mr. Charles Edward Mallows, F.R.I.B.A.

It is with sincere regret that we announce the death of Mr. C. E. Mallows, F.R.I.B.A., which occurred suddenly from heart-failure, on June 1, at his residence at Biddenham, Bedford. Mr. Mallows, who was born in 1864, was educated privately, and at the School of Art, Bedford. He was articled to Mr. Francis T. Mercer, of Bedford, and began practice in 1892, in London. He obtained in 1889 the Pugin silver medal and travelling studentship of the R.I.B.A., of which he became a member of the Council and of the Prizes and Studentships Committee and the Registration Committee. He was one of the most accomplished of architectural draughtsmen, and was a prizeman of the Royal Academy. His architectural work consisted chiefly of large and small houses and gardens, in Norfolk, Kent, Sussex, Berkshire, Cornwall, Cheshire, Hampshire, Buckinghamshire and Bedfordshire, and varying in cost from £40,000 to £400. He was a frequent contributor to this Journal, the "Architectural Review," and other periodicals, and was the author of an ambitious scheme for the improvement of South London, of which the outstanding feature was a southern embankment for the Thames.

Sir Arthur Church.

The death is announced of Sir Arthur Herbert Church at Shelsley, Kew Gardens. Born in 1834, he was the son of the late John T. Church, and was educated at King's College, London, the Royal College of Chemistry, and Lincoln College, Oxford, where he obtained a First Class in Natural Science. From 1863 to 1879 he was Professor of Chemistry at the Royal Agricultural College, Cirencester. From 1879 to 1911 he was Professor of Chemistry at the Royal Academy of Arts. He was the discoverer of turacin, an animal pigment containing 7 per cent. of metallic copper, and of churchite, a native cerium phosphate, and of other previously unknown minerals. He was President of the Mineralogical Society from 1898 to 1901. In 1909 he was made K.C.V.O. He was a D.Sc. of Oxford, a Fellow of King's College, of the Society of Antiquaries, of the Institute of Chemistry, and of the Chemical Society. He was a prolific writer on scientific subjects, a high authority on the preservation of pigments, and his suggestion of the use of baryta water for the preservation of surfaces (*e.g.* the frescoes in the Houses of Parliament) from decay often brought him into close touch with architects.

Lieutenant Harry Gustav Byng.

Harry Gustav Byng, who fell at the head of his platoon in the battle near Festubert, on May 16, was born July 12, 1889, third son of the late Gustav Byng (founder and late chairman of the General Electric Company, Ltd.), and Mrs. Byng, of 32, Bryanston Square, W. He was educated at Harrow, where he was captain of the school gymnasium eight, monitor and head of his house, for which he played both cricket and football; he also played for the Harrow Association football team. After leaving Harrow, he joined Faraday House, and was awarded the silver medal in his year. He then completed his education at Harvard University, where he distinguished himself by his brilliancy,

LIEUT. H. G. BYNG.

passing all his examinations with ho
He enjoyed extraordinary popularity
socially and as a good sportsman.
was captain of the Harvard Assoc
football eleven. When leaving H
he joined an exploring expedition in
lesser-known parts of Canada, and
short return home joined the G
Electric Co., Schenectady, as a pupi
distinguished himself in the test-
Returning to England in order to a
a position in the General Electri
Ltd., he settled in Warwickshire, s
live near the works at Witton, and
the Forces in the first week of th
He trained with the Artists' Rifle
went to France with them at the
September, returning home on Ma
on five days' leave, during which ti
married Miss Evelyn Curtis, of Bost
Beverley Farms, Mass, U.S.A. In
ately after he was gazetted 2nd Lieu
of the Second Border Regiment.
his death in battle his commanding
wrote: "Mr. Byng was wounded
most gallantly leading his platoon in
on May 16. He was universally p
in the regiment. He had done ver
work reconnoitring the enemy's tre
and his loss is very great to the batt
The Adjutant of his regiment
"He was shot whilst leading his me
fell actually on the enemy's trenche
lay quite uncomplaining, and wou
allow any of his men to carry him
because of the danger to their lives.

SOCIETIES AND INSTITUT

Cardiff Master Builders' Associa

The rates of wages of the operat
Cardiff and district have been incre
½d. per hour from May 1 until Oct
next, when the workers will rece
additional ½d. per hour, making the
rate for skilled workers 10½d. per
Painters, however, get 9d. per hour
diately and 9½d. in October. Th
alteration made in the working hou
that on and from May 1, 1915, wor
cease at twelve noon on Saturdays.

Manchester and Salford Building
Employers' Association.

Mr. Thomas Chalmers was electe
dent of the Manchester, Salford, and
Building Trades Employers' Associa
the annual meeting of that body
cently. Mr. Chalmers is the ma
director of the firm of Messrs. Pe
Norquoy, Ltd, Ancoats, who are t
tractors for many large and im
buildings now in course of erection
Manchester district.

Building Prices.

At a recent meeting of the So
Antiquaries, Mr. Lawrence Weaver
short paper comparing the building
of 1671-87 with those obtaining at t
sent day. The enquiry was based
accounts of Wren's City churches,
on which was read by Mr. Weaver
cember 10 last. Mr. William Lun
full, but unpriced, copies of the c
bills relating to St. Stephen's, Wa
and to St. Mary-le-Bow, and then
these bills as a contractor would pri
to-day. Mr. Lunn found that the
rebuilding St. Stephen's to-day w
£15,400, as compared with £7,6
actual cost in Wren's time, and the
ing of St. Mary's would cost £38,
compared with the actual cost of £
If, then, 2¼ were taken as the aver
of increase, the total cost of the f
City churches would be to-day n
than £700,000.

EL ECONOMY AND EFFICIENCY.

tations have of late been representing to the Govern-
ie need for greater facilities for the transport of coal to
, so that there should be no risk of a breakdown in the
of electricity and gas to engineering works and other
s and business premises. Probably few who read the
of these meetings had realised the extent to which
—and especially branches of industry of high national
nce at the present time—would be disorganised by the
off of the supply of coal gas in London. Those who
adequate conception of the certain effect of such a
e would be both surprised and interested to visit the
ental and demonstration shops which the Gas Light
ke Company have recently opened at their City depôt,
swell Road, for the service of the rapidly increasing
of manufacturers desirous of considering the use of
as a fuel in their factories and workshops.

on the opening of this permanent exhibition, were to
a great variety of boilers, crucibles, furnaces, muffles,
low-pipes, and other gas-heated appliances suitable for
st infinite variety of industrial processes, some of which
ustrated by samples of the products, while particulars
y others were given by the expert technical staff
he company places freely at the service of the manu-
s in its area of supply.

industrial processes, in which gaseous fuel is playing
rtant and a constantly increasing part, include many
are connected with the war against Germany,
its military and its commercial aspects. For
, there were to be seen samples of wolfram ore, roasted
for the production of pure tungsten required for the
ture of high-speed steel, for which there is so much
in munition factories. Samples were also shown of
es for our cavalry, of which some 10,000 are being
ut weekly by the aid of gas-heated forges, which have
the makers to speed up production in a highly
ory manner.

there were to be seen button-stampings, annealed and
gas, which formerly came from Germany; varnish,
gas-heated furnaces, which before the war was largely
from Germany; and several brilliant colour materials
d decomposed by gas, for which we previously depended
nemy.

ulars were also given of innumerable furnaces and other
es supplied for the manufacture of shells, guns, rifles,
, ration tins, cartridge clips, revolver handles, uniform
d other requirements of our forces; for the treatment
s required in the manufacture of motor cars and aero-
for the case-hardening of large dies used for the produc-
mbossed paper plates and dish-covers, formerly made in
; for the treatment of vulcanite substitutes used in
telephone mouthpieces, revolver handles, etc., formerly
by German factories; and for the treatment of quills
and toothpicks which in times of peace we imported in
antities from central Europe.

processes in which, because of its convenience, cleanli-
our-saving capacity, reliability, and ultimate economy
ver to increase and improve output per square foot of
ce—gas is rapidly displacing solid fuel, of which in-
vere cited by the company's staff, include the making
meters and nautical instruments; gold and silver melt-
eating and finishing glass; enamelling on metals, china,
ry; japanning bedsteads; annealing metal stampings;
wing; annealing steel for all purposes and in all sizes,
ge bars down to buttons, and steel studs for cycle and
hains; hardening and tempering tools, razors, etc.;
m casting; melting lead for newspaper work; extract-
ow from bones; walking and umbrella stick bending;
ng; brazing bicycle frames; brazing heavy flanges on
pes; straightening or bending chassis; sealing electric
bs; soldering on armatures; assaying precious metals;
g fire extinguishers; generating steam for printers'
sugar boiling and sweet making; firing stained glass;
cloth and thread; cloth stretching or "tentering";
oth; drying tobacco; ripening bananas; drying toe-
ironing, treeing, and polishing boots and shoes; polish-
g-wax; roasting coffee; frying chip potatoes in bulk;
o quote the title of a periodical which the Gas Light
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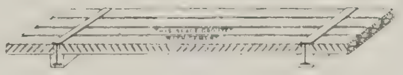

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THE
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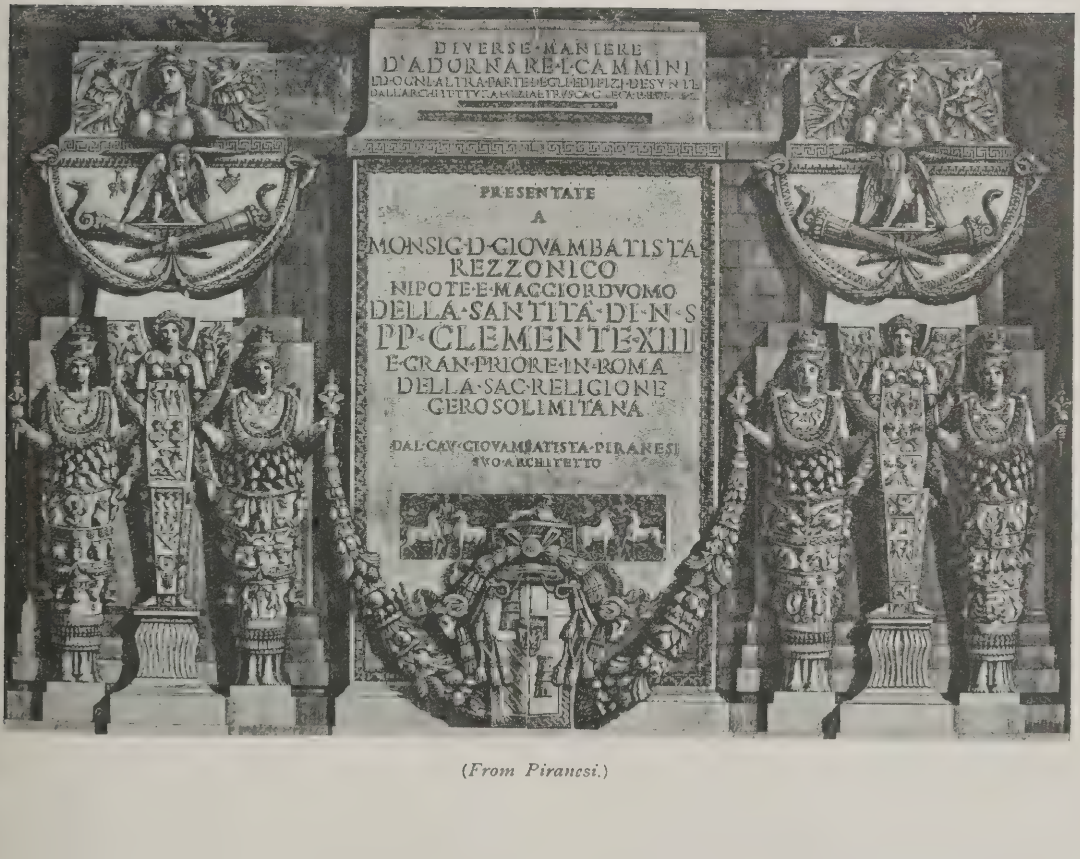
Wednesday, June 16, 1915. Volume XLI. No. 1067.

No. 139.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 16, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1067.

EDITORIAL.

WHEN, in the early days of the present year, Mr. Max Clarke brought forward his resolution for the expulsion of German and Austrian members of the R.I.B.A., regret was expressed that the incident should have arisen; more especially since it gave occasion for a chivalrous defence of German and Austrian architects which, while entirely honourable to those who made it, one felt to be rather an exaggeration of fine feeling and professional sympathy. When, at the business meeting of the Institute held on June 7, the proposal was revived, emphatic approval of it was a foregone conclusion. It had become a moral duty to repudiate all association with the representatives of a nation that exults in the cold-blooded assassination of women and children, and produces in hordes the fiends in human form who perpetrate the savage cruelties and unspeakable bestialities recorded in the Bryce Committee's report; and of course no discrimination in favour of their less flagitious allies, the Austrians, was possible. The general feeling will be that the Institute has performed a plain but painful duty, for which, moreover, there are high and honourable precedents. Not to follow them would have been an implicit and a sorry solecism.

* * * *

It was quite natural, as well as seemly and decorous, that the R.I.B.A. elections this year should fall very flat. The *mot d'ordre* being that all issues wearing the slightest appearance of contentiousness should be held in abeyance and abhorrence, as being "unpatriotic if not treasonable," it is rather surprising that the members of the old Council were not "returned unopposed" *en bloc;* but among the Fellows there were twenty-seven candidates for the eighteen places, and, for Associate membership, the choice of six lay among ten. The method of voting may be said to be negative, as compared with the positive of the polling booths. In the latter you put a cross against the name of the candidate of your choice. In the R.I.B.A. elections you cross out the names of the undesirables—a process of elimination or deletion that is said to lend, in some cases, a peculiar zest to the act of penmanship involved, oppugnancy tending so much more to energy than does bland assent. In either case the material result on the election is approximately the same; but what about the moral effect on the voter? Is he not encouraged to enlarge his bump of destructiveness? But, to speak seriously, we are sorry to notice that several good men have been rejected for no apparent cause, and without greatly altering the complexion of the Council, in which, however, the changes seem to tend to a slight deepening of the tinge of conservatism that in former recent elections had begun to turn pale. It is nevertheless such an imposing array of eminent names as to warrant the supposition that Sir Ernest George, whose letter of advice it seems to reflect, has seen of the travail of his soul and is satisfied. It remains for the Council to justify his confidence and that of the electors.

Sir Rider Haggard made "King Solomon's Mine famous as a matter of romance, but a member of Archæological and Architectural Society of Durham a Northumberland has "sampled the goods" from K Solomon's quarries. Mr. H. W. Thorburn, of Bish Auckland, has presented to the Masonic lodge of wh he is a member a piece of stone "brought from K Solomon's quarries, near Jerusalem." It is a m appropriate gift to Freemasons, who hold K Solomon's temple in extraordinary veneration, beca to that building most of the brotherhood trace origin of their craft, which, however, some hold to h begun either with the Creation or immediately after Flood. The Rev. George Oliver held that Moses a grand master, Joshua his deputy, and Ahcliab a Bezaleel grand wardens. Freemasonry as at pres constituted did not begin until June 24, 1717, when four London lodges erected themselves into a gra lodge. In St. Paul's Cathedral there is carefully p served a small piece of carved stone which many of faithful regard as having once formed a portion Solomon's temple. Treasured bits of stone must fairly numerous. There is, for instance, the Sc stone in Westminster Abbey, on which our monar are crowned. This, in popular legend, traces back King David—not of Scotland, but of Israel. Of in finite antiquity and dubious history is London Ste which is inserted in the outer wall of the church of Swithin, Cannon Street. It is a block of Kentish (Lower Greensand) and Camden the antiqu believed it to have been the central milliarium or m stone (similar to that in the Forum at Rome), fr which the British high-roads radiated, and from wh the distances along them were reckoned. This c jecture, and the story that Jack Cade struck it with staff in token of his lordship over London, may perh entitle it to take rank among the "precious ston that are outside the category of gems.

* * * *

A writer in the "Leicester Daily Post" notes the Temperance Hall at Leicester bears on its exte the name of its architect, Mr. J. Medland, of Glouces Since the building was originally designed as a mu hall, and very few people are aware of this fact, th arises the interesting question of whether an archi gains much fame by handing down his name as author of a building that may be put to other and v different uses from those for which he designed it. course, the difficulty could be easily overcome by architect stating explicitly what he believed the bu ing was intended to be. But such a record as "T building was designed by X. as a place of worsh would look inept when in course of time the prem became a cinema, and the architect effecting the c version might not like it any more than would original designer. Occasionally one sees in Lon as on a certain building in Tudor Street, the initial

chitect; but in Edinburgh (following a very early
cal practice, which sometimes got the architect
erious trouble when his patron wanted all the
of the work) there are several instances of the
ect's name appearing in full, to be blessed or
ited as the occasion may seem to justify, or as the
es and chances of taste and fashion seem to dic-
For the architects' name to appear solus, how-
ets up a suspicion of egotism, or, what is worse,
sire for immediate advertisement rather than for
fame; while its appearance in a longish list (on
nemorial stone") that includes not only all the
earers of the moment, but also the contractors
e clerk of works, merely confounds the issue.

* * * *

n another "Post"—that of Liverpool—we learn,
t overmuch surprise, that a certain church in
shire was built as a speculative enterprise; the
olders to recoup themselves out of the "takings."
er these included the damaged threepenny bits
etal buttons dropped into the alms-bag or
it bason" is left to conjecture; but we are told
pews were let by auction. This kind of thing is
n in America, and instances in this country are
e than might be supposed. Hence the base uses
ich "sacred buildings" are so aften turned.
gh it is perfectly revolting to think of cold-
l syndicates exploiting religious fervour as a
s speculation, it must be admitted that there is,
ild be, a bright side to the arrangement, quite
om the sardonic humour of the situation. Archi-
d contractors have too much reason to complain
ontrary vice of absence of the business element
pious founders, whose zeal in the collection of
r building is apt to fall off lamentably when the
is erected and the bill is sent in. That was a
arly lucid interval of Ruskin's in which he made
st savage assault on the habit of building on
d leaving the architect and builder to whistle for
ration, or at best "to come tardy off."

* * * *

ie summer meeting which, with characteristic
the Institution of Municipal and County
ers have determined to hold (on June 24), in
the war, there is to be adopted the new practice
g the papers as read and proceeding at once to
ussion. In the present instance this course is
mperative, because eight papers have been pre-
nd unless these are too short to be of much use,
l be impossible to get through them. Such a
commonly arises where the meetings are infre-
id consequently the matter accumulates, and it
only settled by the very unsatisfactory method
ng a few papers, and taking the rest as read.
t and circulate the papers beforehand is much
er way; but only plutocratic institutions can
ie printer's bill, to say nothing of the postage.
disadvantage is the difficulty of getting the
to deliver their manuscripts sufficiently early.
ithor knows that he has to read his paper on a
ite, he will seldom fail to have it ready; but
ly to observe a date for delivery to the printer
a more heroic cast of virtue, and few there be
it. A further obvious drawback is but the
an excellent quality. Members who are given
y should be—sufficient time to digest the
vill come to the meeting so fully primed for
hat only the intervention of the chairman (who
e armed with a clangorous bell) will prevent
iree eloquent gentlemen from exhausting the

* * * *

iree eloquent gentlemen from exhausting the
bane of congresses. With architectural
the rule is—one meeting, one paper, and secre-
the provinces know well the difficulty of maintaining the supply. As a rule, the paper is too long. If the reader is new to the business, he is at the outset overwhelmed with the fear that he will not be able to fill out the time allotted to him. For two-thirds of the time, therefore, he is unnecessarily diffuse. He then finds that he has to pack the gist of the subject into about one-third of the space that he has wasted in his groundless dread of ending too soon. His unimportant preamble is therefore about twice as long as his Bill; for, even if he realises this inconsistency, he usually lacks either the time or the energy to recast the paper.

* * * *

It is doubtless a great boon to harassed provincial secretaries, whose local supply of papers is uncertain both as to number and quality, that a few architects of eminence can be induced to stiffen the programmes of provincial societies. Commonly a successful sermon is repeated in several places; and not to repeat a successful lecture on an architectural subject would be sheer waste of materials. Of course, the lantern slides are seldom allowed to retire upon their first use; they are sometimes made to go extensive rounds, and are often accompanied by the notes made for their original appearance. It is an excellent practice; but the boon to local societies is increased a thousandfold when the author appears in person. The little flutter of excitement on seeing and hearing and conversing with the man of standing is a stimulus of incomparable value to, at all events, the younger members of the society. And it does good in like measure to the visitor himself, always supposing that he is willing to encourage discussion, and will not allow himself to degenerate into a mere perfunctory professional lecturer: of which ill-hap there can be but little fear. But those "younger members" being now all away on war service, what treasures of observation and experience they will bring back with them! At the next opportunity—may it not be long delayed—the young men should do the lecturing for a while, for they will have much that is new and strange to tell us.

* * * *

We greatly regret to announce the death, on May 9, of Mr. John Macvicar Anderson, F.R.I.B.A., F.R.S.Edin. Born in Glasgow in 1835, and educated at the Collegiate School and the University of that city, he was articled to his uncle, Mr. William Burn, who about the middle of the last century had designed many country mansions in Scotland, and, coming from Edinburgh to London, did there much good work—Montagu House in Whitehall, for a specimen—and had among his pupils Norman Shaw contemporaneously with his nephew John Macvicar Anderson. Like his uncle, Mr. Anderson designed many mansions, in England as well as in Scotland, besides many banks and insurance offices in London and elsewhere. He began practice (in London) in 1870, and to his credit are Althorp, Hants; Brampton Hall and Blankney Hall in Lincolnshire; Cheswardine Hall in Shropshire; Iden Manor and Wildernesse in Kent; Powercourt, Ireland; and he designed also Coutts's Bank in the Strand, the British Linen Company's Bank in Threadneedle Street, the Liverpool and London and Globe building, and the Commercial Union Assurance premises on Cornhill, the Junior Carlton Club in Pall Mall, and alterations to Brooks's and many other London clubs. He had served the R.I.B.A. in several capacities, and had passed the presidential chair; and, socially, he had, throughout his long life, served humanity with constant and consistent geniality, charity, and benevolence. We once heard him described as "an ethically fine type of manhood"; and no better tribute can be offered to his memory.

* * * *

A peculiar advantage of the newer and lighter methods of construction recommended by educational headquarters as appropriate to the building of schools is revealed in an advertisement which the chief education officer of Willesden District Council has caused to be inserted in the present issue of the Journal. On behalf of his council he offers for sale a modern temporary school building, "strongly constructed in sections of timber framing outside and special waterproof material inside, and insulated to withstand climatic influences; boarded floors and Ruberoid roofs, easily removable, and can be re-erected at small cost." Such a building (it contains nine class-rooms, two teachers' rooms, two cloak-rooms, latrine sheds, etc.) will no doubt find a purchaser immediately. The War Office should jump at it. The present unprecedented demand for temporary structures should—and no doubt it will—stimulate the invention of ingenious devices in construction with a view to portability and conversion.

HERE AND THERE.

HOW the world has changed since the war began! But what a transformed world it will be when the war is over! Goodman Dull imagines—no, that is quite the wrong verb, for he is obviously destitute of imagination—Goodman Dull supposes that "when this cruel war is over" everybody and everything will at the call of "As you were!" smartly resume their former peace footing. "Peace, Goodman Dull!" There will still be twenty-four hours to the day, the biggest battery of the biggest siege guns fired simultaneously will not have deflected the earth from the accustomed course of her diurnal rotation; but natheless the architect will have fresh problems to face.

* * * *

No matter what happens—whether we are going forward, marking time, or retreating towards mediævalism —or falling back on Classical Ideals as a basis from which to make a more vigorous attack on stodginess— the architect will always have "fresh problems to face," and far be it from me to bereave him of this consecrated and consoling phrase. Only one could wish that he did not so often adopt the expedient of the baffled but unabashed pulpiteer—"Having looked this difficulty boldly in the face, we will pass it by." That courage of facing would never, or but tardily, have got us the new front to Buckingham Palace; and I for one am hoping for the best about the Regent Street Quadrant, where, however, the problem is not so much how to go submissively through one's facings (an obsolescent military expression) as to face several ways at once, with something of the fatuous four-sidedness of the Marble Arch—that most notable of all our monuments to the folly of yielding to popular clamour. To hold any relevancy to its present absurd situation, it should be inscribed with a line from the imperishable poetry of Tate and Brady—"How blest is he who ne'er consents by ill advice to walk." Not but what, jutting up rock-like in a whelming sea of traffic, it is an apt symbol of our invincible insularity. It will be extremely interesting to see, with respect to the Quadrant, what direction will be taken when Shavian and shopkeeper, and the bland moderator between these violent extremists, have shouted simultaneously their mutually contradictory commands. If there be any virtue in the northern flavour of the name he bears, the architect in whom is our trust for the harmonious blending of these various voices is of all men the least likely to get confused in the din; and I am sure that all interests will be best served if he "e'en gangs his ain gait."

* * * *

Even so did his illustrious namesake, the Regent Murray, about whose policy when he was appointed Regent I am fain to quote from the records a passage that seems to admit of a modern architectural application: "The position was full of temptation and difficulty, but his conspicuous integrity and moderation, joined to unflinching courage and the utmost readiness of resource, proved to be adequate to what the circu stances demanded." As it was with the Regent, may it be with the Regent Quadrant Murray. T latter will certainly face his problem with firmness a courage: perhaps also with stucco, which the trad interest prefers before stone; stucco being easier keep of a cheerful countenance, and absorbing l light withal. Besides, the average tradesman and average householder are deeply in love with pa although they nearly always dissemble their love a quarrel with the painter.

* * * *

No matter how persistently they may affect to c demn the painter and all his works—his panoply trestles and cripples and cradles, his dustings and da ings and stipplings and splashings, his amorous del between his burnings, his stoppings (ambiguous tern his knottings and fillings and swillings, his insinuat references to driers, his turpentine and his turpitu his coatings and floatings—nevertheless, they have ineradicable love of the chaos he creates, and odours of which they so bitterly complain are a sweet savour unto their nostrils. For all these c comitants are to the tradesman an evidence of his p prosperity and an augury of its continuance. Hav "the painters in" is a most effective means of adv tisement. People talk about it. "Dash, the dra is having his shop done up again. Must be doing w Local papers record how our enterprising fell townsman is having his premises newly decorated. tradesman knows that it pays to paint, and to mak much fuss as possible about the operation—of cou discreetly and adroitly. And it gives a colour excuse for selling off the old goods at an alarming sa fice, and hence of calling attention to the "entirely stock." I begin to understand more clearly why Regent Quadrant tradesmen witnesses prefer stu Small blame to them. Paint pays.

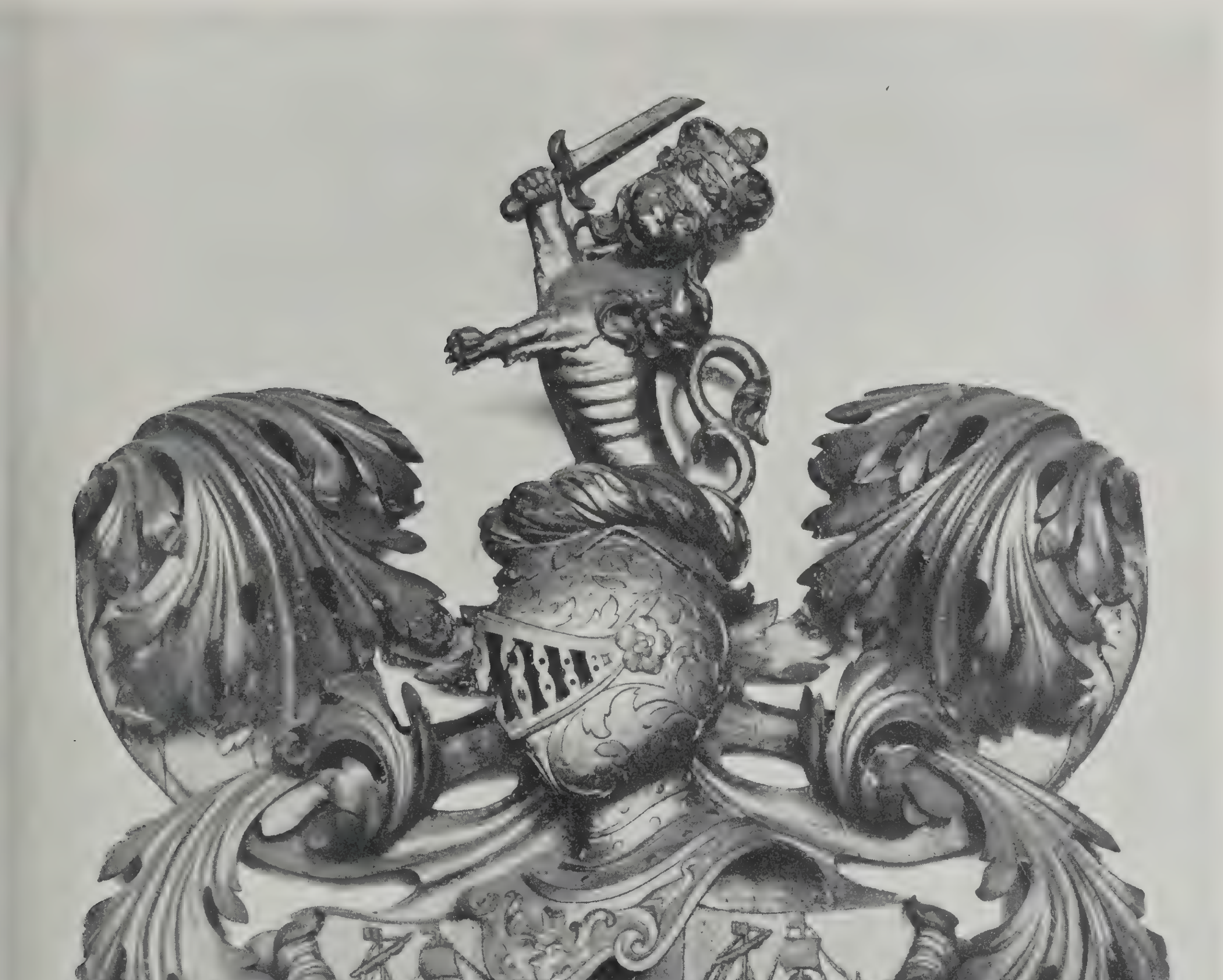
* * * *

For the house-painter of military age to be ca red-handed (or with his hands of any other colour the very act of exercising his gentle if not wh inoffensive craft is, in these stirring times, it seem national scandal. "Pah!" exclaims one irate pa in the newspapers, "my gorge rises at the spect Smearing surfaces with a brush is no work for men. child could do it. Let women do it, and let t strapping young slackers sally forth to have a b with the enemy." To him that would not, the pa would say, in effect, what Private Blood (in "Kitch Chaps") gallantly said to the cantankerous old lad "May you die of the 'orrors!" Really, the chance dying of the 'orrors of lead are about equal for whether he goes to the front or remains at home to p in such peace as the perfervid patriot will vouchsa him; but, at any rate, his supersession by women children seriously exaggerates the softness of his and discounts altogether the experience immorta in one of the old A.A. plays—in the lullaby begin "Rock me to sleep in a Pawmer's cridle!"

* * * *

But touching those fresh problems that the arch will have to face when the war is over. One ha idea that they will not be quite "as fresh as pa They will be pretty much the same old problems, there will be some considerable differences of scale proportion, a shrewd revision of relative values, a imagine, several changes in the intensity and dire of thought, feeling, energy, and effort. Great co sions such as this stupendous war alter more th than the fashion of my lady's hat and the cut and c of her kirtle; and he will be the most successful a tect, or man of business, who is the most alert and to embody the new spirit that is to inform the world that will presently arise from the ashes of the

NEM



AILS OF CRAFTSMANSHIP. XXII.—CARVED WOOD SHIELD OF ARMS OF THE CORPORATION OF THE TRINITY HOUSE.

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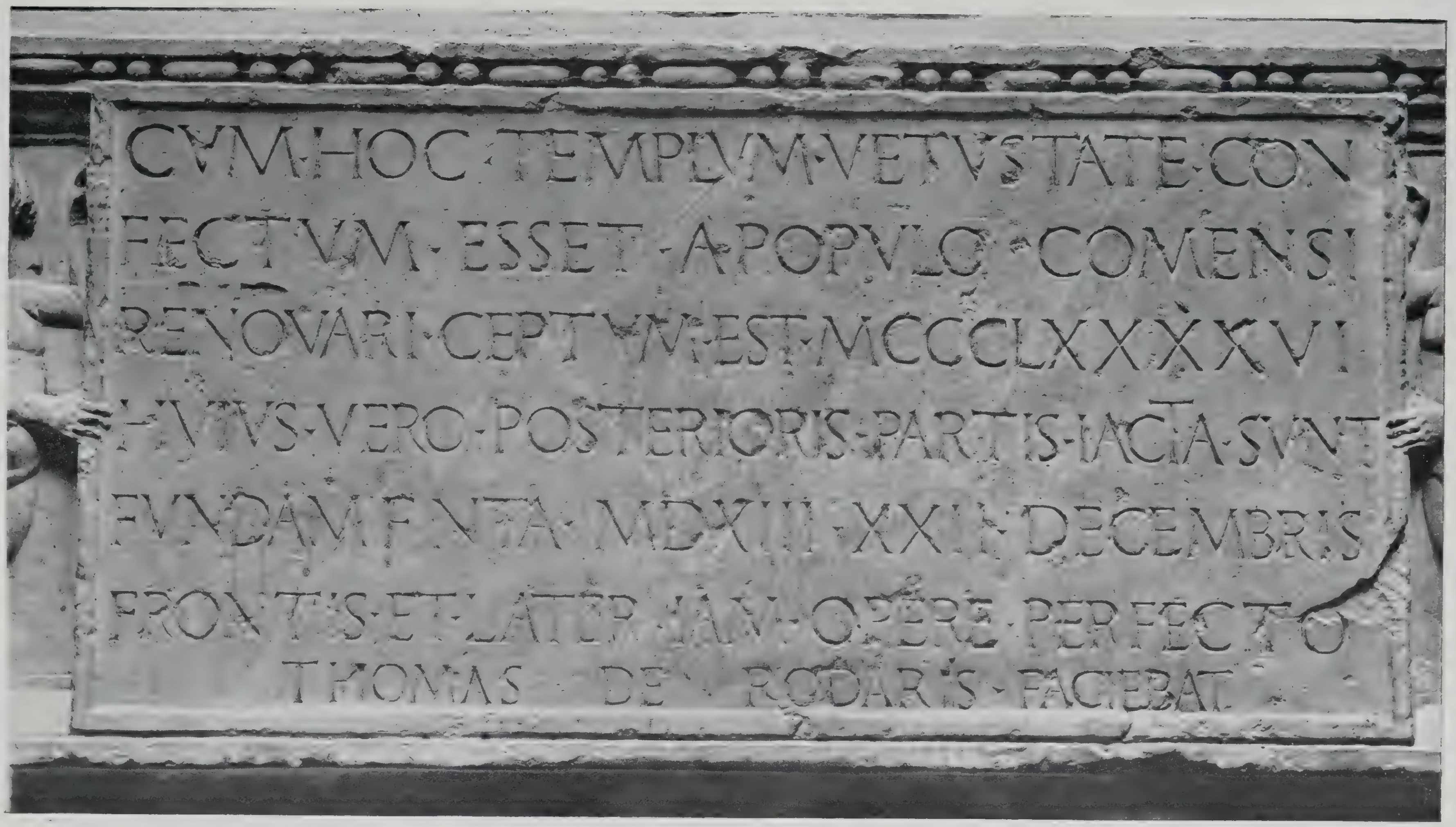
CVM·HOC·TEMPLVM·VETVSTATE·CON
FECTVM·ESSET·A·POPVLO·COMENSI
RENOVARI·CEPTVM·EST·MCCCCLXXXXVI
HVIVS·VERO·POSTERIORIS·PARTIS·IACTA·SVNT
FVNDAMENTA·MDXIII·XXI·DECEMBRIS
FRONTIS·ET·LATER·IAM·OPERE·PERFECTO
THOMAS·DE·RODARIS·FACIEBAT

TABLETS AND INSCRIPTIONS. IV.—INSCRIPTION ON STONE TABLET IN CHOIR OF COMO CATHEDRAL, DATED 1513.

[illegible]
[illegible]
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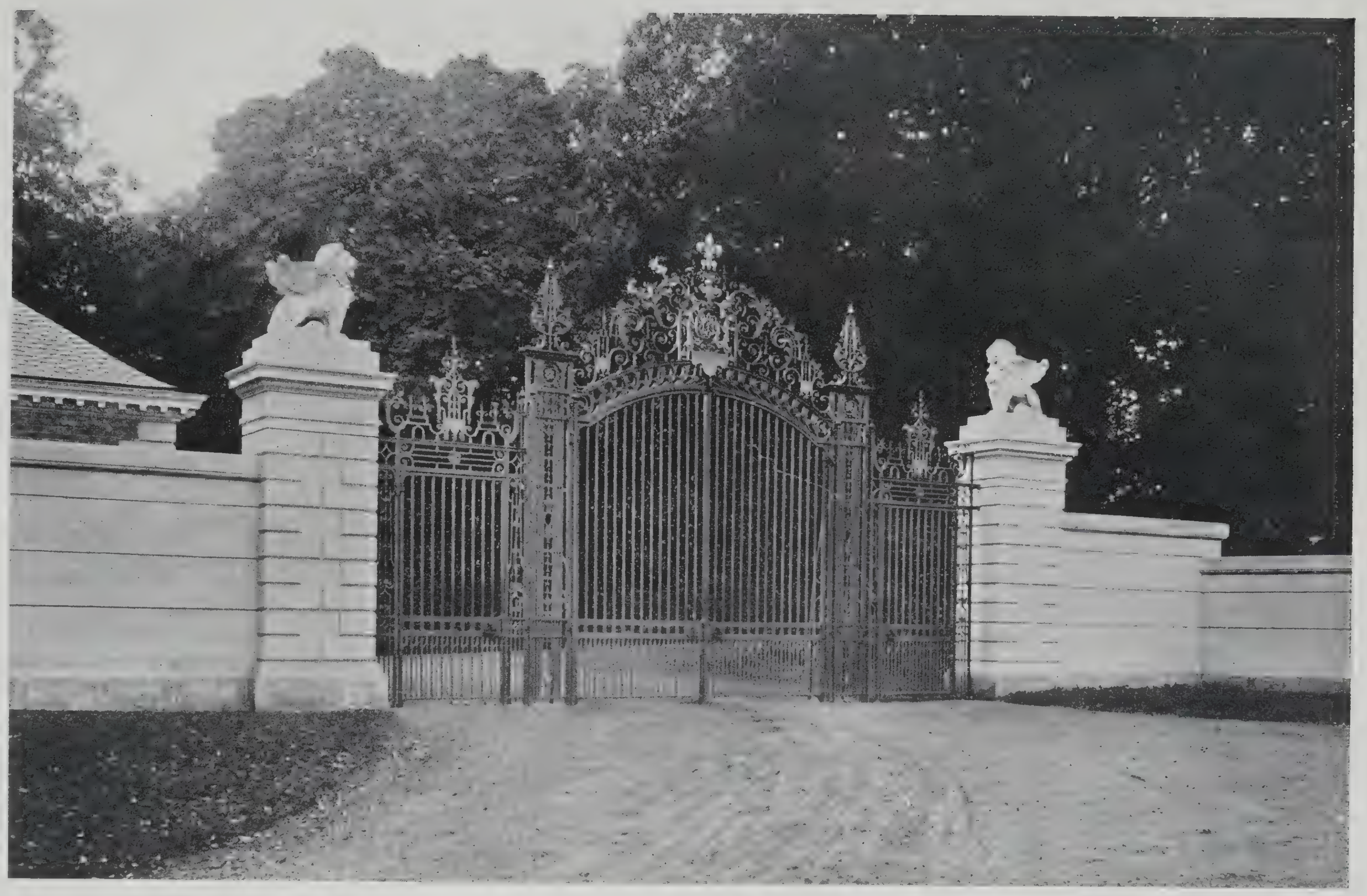
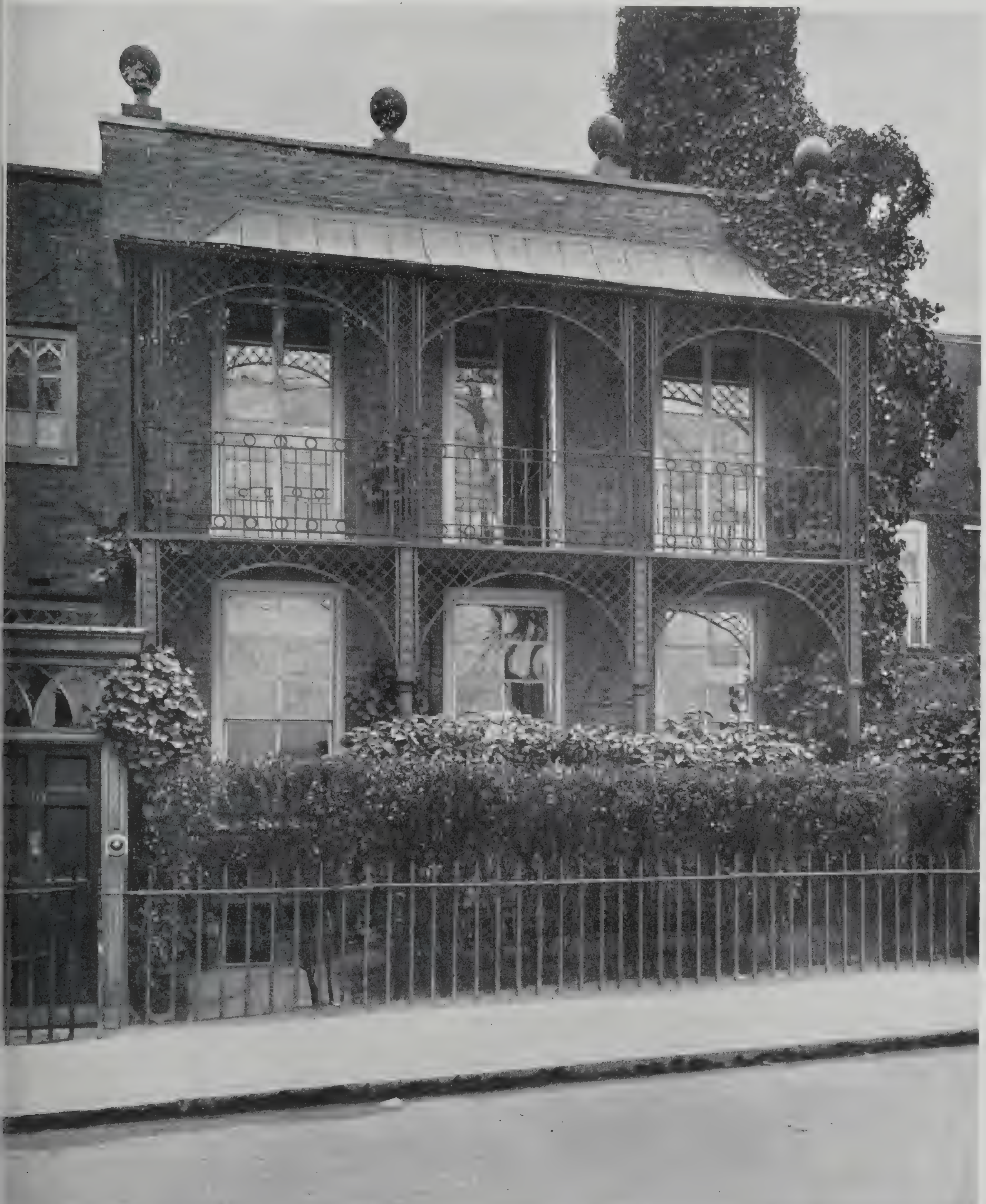
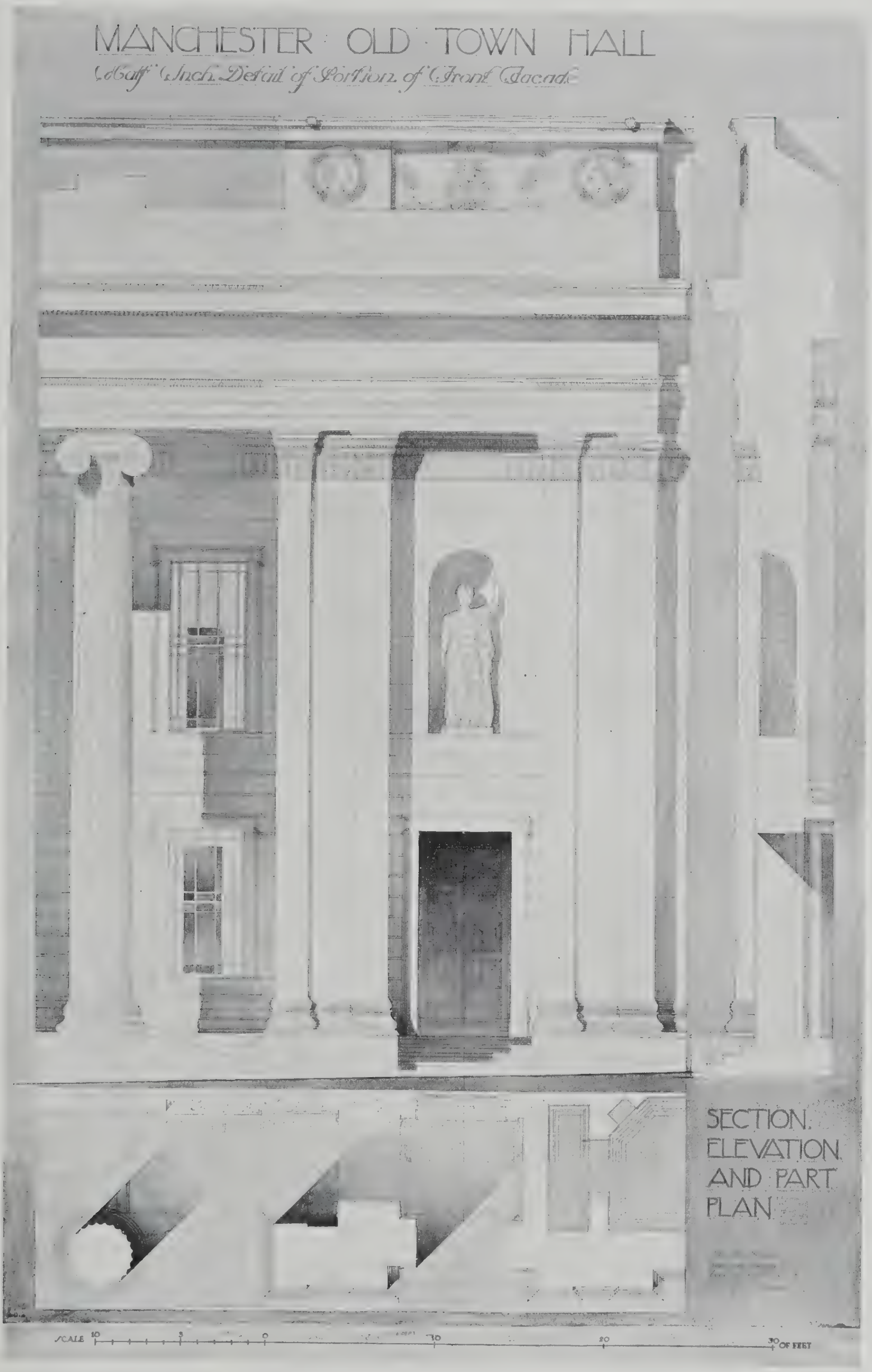


MODERN DOMESTIC ARCHITECTURE (SERIES II.). XIV.—ENTRANCE GATES TO A COUNTRY HOUSE.

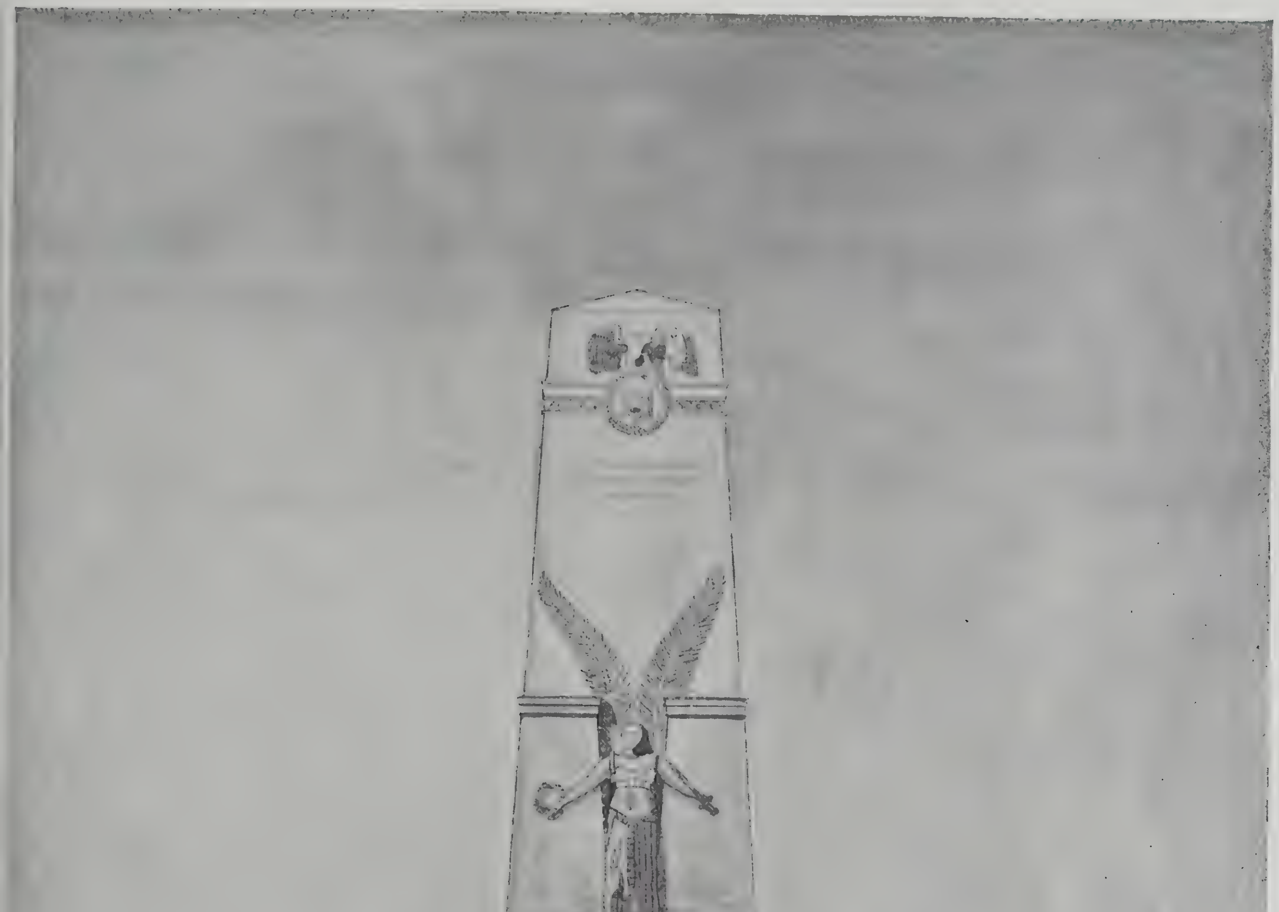
NIVEN AND WIGGLESWORTH, FF.R.I.B.A., ARCHITECTS.



SMALL HOUSES OF THE LATE GEORGIAN PERIOD. XLVI.—HOUSE ON THE TERRACE, BARNES.


MANCHESTER OLD TOWN HALL
Half Inch Detail of Portion of Front Facade
SECTION, ELEVATION AND PART PLAN
SCALE 10 5 0 10 20 30 OF FEET

MANCHESTER OLD TOWN HALL. II.—DETAIL OF FAÇADE. MEASURED AND DRAWN BY GORDON HEMM.


TO THE MEMORY OF FIELD MARSHAL
EARL ROBERTS VC KGMB
R. I. B. A.
2
FOUR AND SIXTY FEET TO ONE INCH

STUDENTS' DRAWINGS. XLVI.—DESIGN FOR MEMORIAL TO LORD ROBERTS.

BY SIDNEY C. FOULKES.

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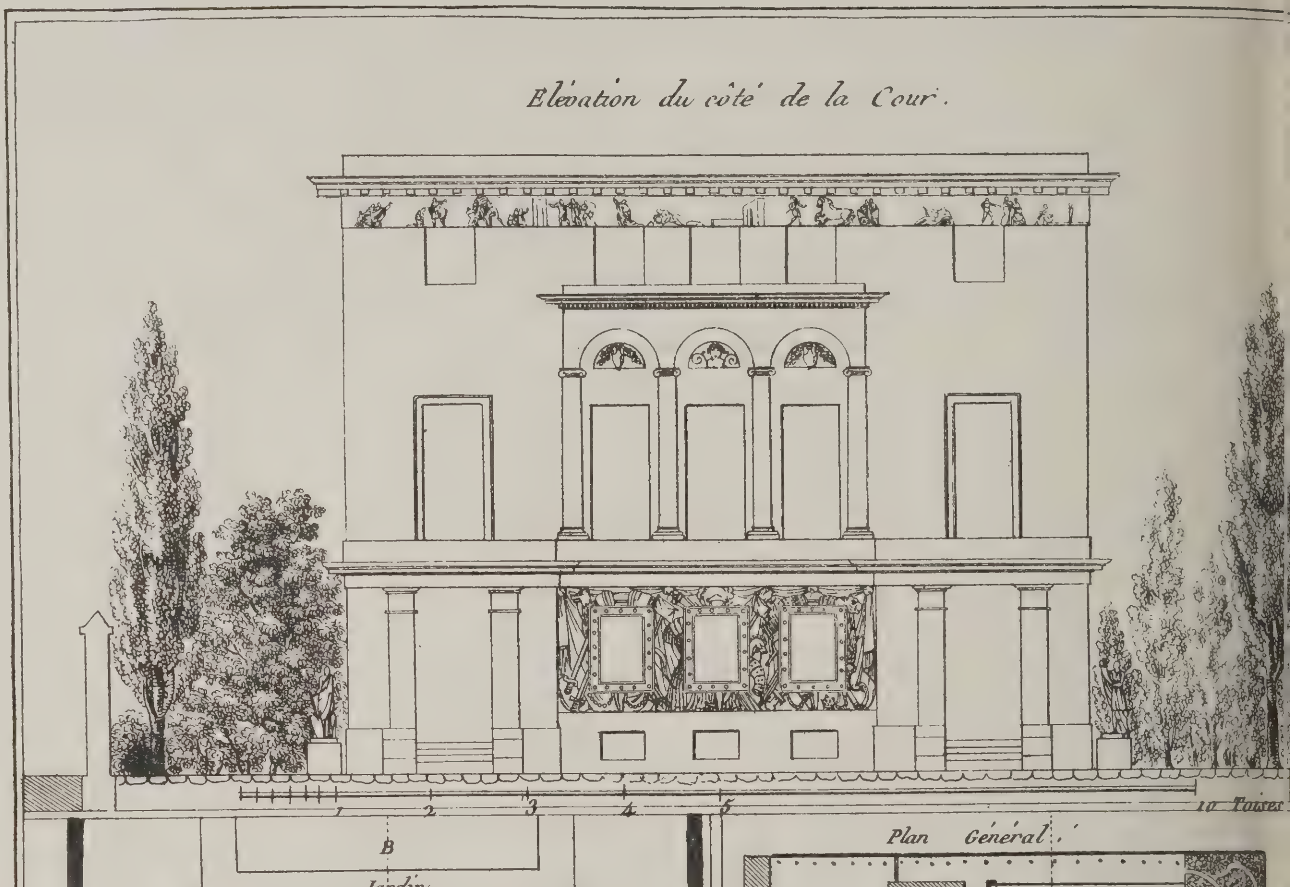
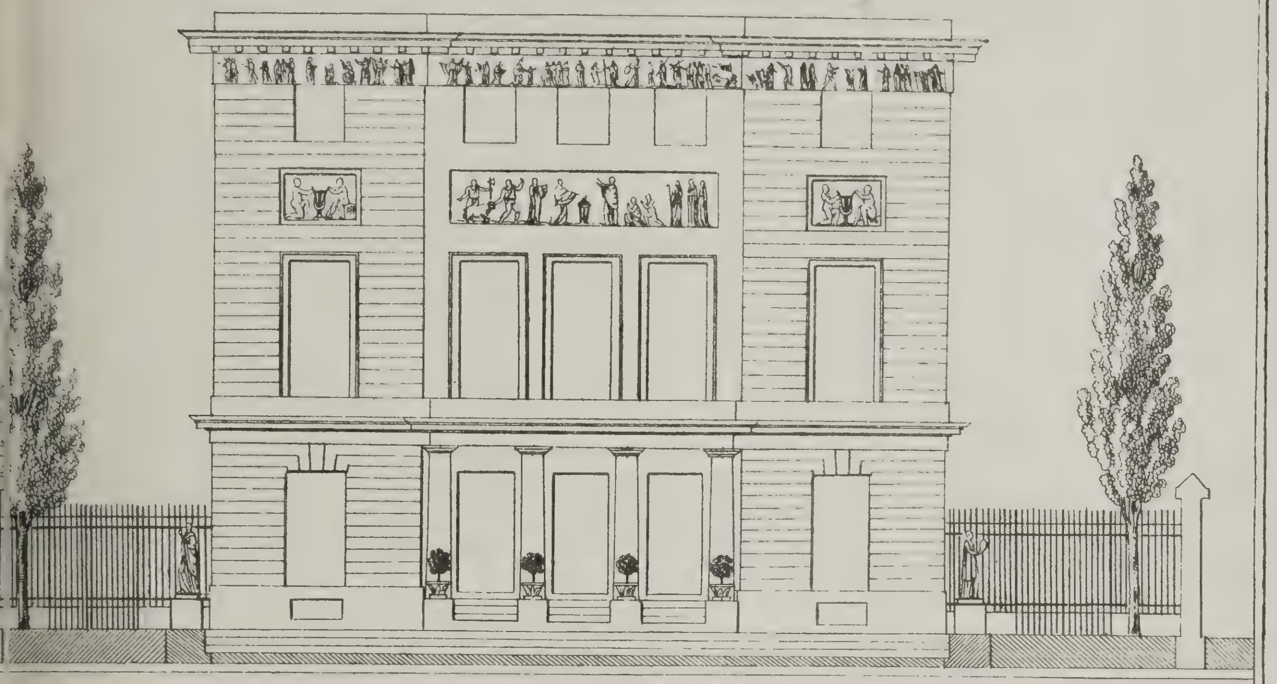


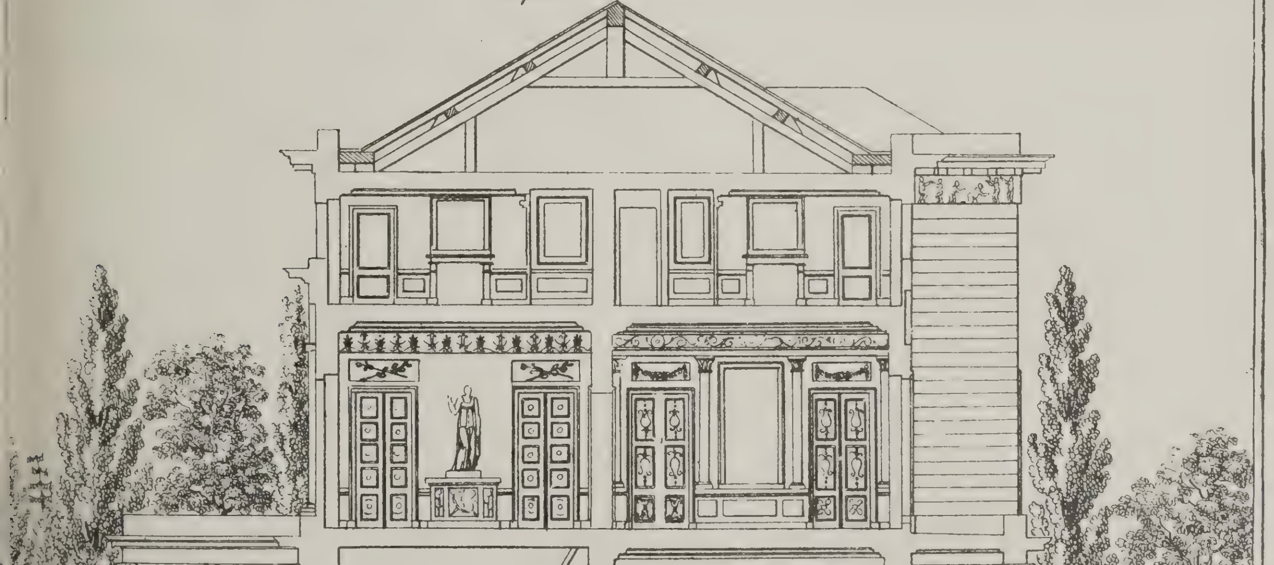
DESIGNS FROM KRAFFT.

LO

Elevation du Côté du Jardin



Coupe sur A B



HOUSE AT ST. GERMAIN.

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THE PLATES.

Arms of the Trinity House.

ts first charter, received from Henry VIII., in 1514, ne Corporation of Trinity House was described as the guild or fraternity of the most glorious and idable Trinity of St. Clement," and it was from n Elizabeth that it received, in 1753, its grant of , with authority to erect beacons and other marks e guidance of navigators along the coasts of and. The headquarters of the Brethren of the ty, who act as nautical advisers in the High Court dmiralty, superintend the Trinity pilots, and ex- e navigating lieutenants in the Royal Navy, were ved in 1798 to Trinity House, Tower Hill, which uilt in the Ionic Order from the designs of iel Wyatt. The arms shown are carved in wood are partly coloured and gilt, the size being 4 ft. by 3 ft. 1½ in. It is English work (about 1870), boldness of the crest, helmet, and scroll mantling ly indicate.

Inscription from Como.

is fine example of incised lettering on a stone t in the choir of Como Cathedral was made in and its curious suggestion of greater modernity ibly arises from the fact that, in shape and propor- he characters vary but little from the Roman face popular by William Caslc , the typefounder, r more than a century later, and still current and ded as almost the perfection of form in typo- y. The exiguous T in IACTA in the fourth perhaps too commonly imitated in modern work.

Entrance Gates to a Country House.

ese gates form part of a garden scheme that was d out by Messrs. Niven and Wigglesworth, .I.B.A., whose client desired that the locality in the work is situated should not be mentioned. is perhaps a little over-elaboration in the crest- f the central gates, but the piers seem exactly in proportion and design.

House on the Terrace, Barnes.

orgian architects knew how to snatch a grace in ing the trellises, verandas, and balconies with they so often and so successfully redeemed a front from baldness. Withal, in their most rant moments they seldom forsook sobriety, and, is specimen shows, knew well that elegance is atible with simplicity and restraint, or, rather, that ese qualities it depends rather than on the cacy" which a later generation deliberately cul- d as if it were rather a virtue than the vice for over-elaboration is now recognised.

'ail of Façade, Manchester Old Town Hall.

publishing, in our issue of May 19, the first of a of drawings by Mr. Gordon Hemm of the old Hall at Manchester we mentioned the circum- s in which Goodwin's building, which was d in 1825, was pulled down, and that the façade, ich this week we reproduce a detail drawing, een set up in Heaton Park, Manchester. This ng is chiefly remarkable for the masterly render- the delicate decorative details.

Design for Memorial to Lord Roberts.

epresentative collection of war memorials, such at made for the "Architectural Review," ghly vindicates the architectural type of monu- as distinguished from that in which sculpture minates. Not that there is any real rivalry en the two kinds. There is room for both, as s for a judicious co-operation between architect ason, which should give the ideal monument. In sign by Mr. Sidney C. Foulkes, of the Liverpool rsity School of Architecture (it will be remembered that the subject was set as one of the recent R.I.B.A. problems in design), this collaboration is clearly intended.

Country House at St. Germain.

It is interesting to compare the French love of severity of logic and line, as strongly manifested in this example from Krafft, with the preference for suavity and informality which is characteristic of the English country house of to-day, which the French greatly admire, but do not imitate. In the naturally rather rare instances in which they adopt the English domestic style they wisely employ English architects.

CORRESPONDENCE.

Riveted Steel Stanchions.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—May I be permitted to make the following observations with reference to Mr. Waldram's article and drawing on Riveted Steel Stanchions, in your issue of May 12?

The total load on the stanchion is 459 tons, and this gives a unit stress of 4.25 tons per square inch. The proportional load carried by the flange areas is 389 tons. The proportional load transmitted by rivets from flange into the base gusset plates is 212 tons. The proportional load carried by web areas is 70 tons. The proportional load transmitted by rivets from web into brackets is 238 tons.

Should not the load and rivet strength be equal in each case? If the rivets are put in as shown, will this not cause shearing stresses to be set up between the web and flange?

The actual load per square foot on the base plate is 51 tons. This appears to be a very high value for bearing on a steel grillage, the customary value used only being about one-half the value used above. The value of the rivets connecting the base gusset plate to stanchion is 106 tons, but the value of rivets connecting gusset plate and base angles is only 66 tons. Since the load transmitted is the same in each case, should not the value of the rivets be equal? The value of the rivets connecting one of the web brackets to the stanchion shaft is 60 tons (A). The value of rivets connecting bracket vertical angles to gusset plate is 382 tons (B). The value of rivets connecting bracket horizontal angle to gusset plate is 14½ tons (C). Since the load transmitted is the same in each case, should not the values (A), (B), and (C) be equal?

I agree with Mr. Waldram that the stipulation *re* riveting in bases should be somewhat relaxed when the ends of the stanchions are machined after assembling. A sliding scale of percentages of rivet value to total load would appear to be suitable to base any reduction in the number of rivets required. Should any reduction be made, the correct proportioning of the number in the flange and web should be carefully considered, especially in the case of heavy loads.

AXIOM.

In reply to the letter of "Axiom" no attempt has in the base referred to been made to arrange the rivets in accordance with any assumed distribution of stress over the cross section; but rather to stiffen, as far as possible, all parts of the base plate, and also to strengthen the ends of the thin joist webs. The latter, even with the ends machined, are apt to be a trifle longer than the flanges, and therefore liable to take an undue proportion of the reaction. It is not easy to adequately and evenly stiffen the large bases required for exactly consistent arrangements of rivets, and although practice undoubtedly varies with regard to bases, the example shown is not, I think, at all unusual either as to size or design.

PERCY J. WALDRAM.

THE RECONSTRUCTION OF BELGIUM.—I.

In the series of articles of which this is the first, two gentlemen of high standing in the building and contracting indu Belgium—the one an eminent contractor for public works, and the other the legal adviser to an important association of B contractors—have collaborated with the object of setting forth frankly and clearly the needs of Belgium and the best means of n them, with especial reference to what must be done if British manufacturers are to capture the large amount of Belgian trac was formerly in the hands of the Germans.

ENGLISH and French statesmen have repeatedly declared, with the manifest hearty agreement of their fellow-countrymen, that Belgium must be reinstated and restored, and for this assurance the Belgians cannot sufficiently express their gratitude.

The restoration of Belgium means, of course, from the more especial point of view of architects, engineers, builders, and merchants, its material reconstruction, and it will be remembered that, with that object in view, the International Garden Cities and Town Planning Association called together in London in February last a congress at which the principles of modern town-planning were clearly enunciated, and stress was laid on the opportunity afforded for their practical application in the rebuilding of Belgium. Congested areas can be relieved by outward extensions, and can be rendered thoroughly sanitary, isolated districts may be linked up, separate groups of dwellings can be brought into rational relationship. Thus it became evident that the solution of the æsthetic and hygienic problems involved has its sociological corollaries.

A large fund of valuable information has been accumulated by British architects and civil engineers, who have long recognised, and studied with a view to amelioration, the terrible evils of overcrowding and the disastrous moral and physical effects of unlovely slums, with their inadequate space, light, and air, and the result of these studies, and of the parallel investigations of hygienists and philanthropists, has given rise to the Housing and Town Planning Act. An interesting exhibition held at University College, London, last April, was a very fitting sequel to the congress.

Necessarily the reconstruction of Belgium involves other problems besides those of amenity and salubrity. There are financial, commercial, and industrial aspects to be considered; for, if in the work of repairing the roads that have been ruined in military operations, of reconstructing the towns and villages that have been destroyed, of rearing again the buildings and monuments that have been demolished by shrapnel or have perished by fire, the aid of many architects and civil engineers will necessarily be required, there is also at least an equal necessity for enlisting the services of contractors to execute these various works, as well as those of the makers and vendors of multifarious implements and tools, plant and machinery, materials and general supplies. And finally it is necessary that there should be proprietors who shall be in a financial position which permits them to undertake such reconstruction.

I.—*Finance.*

If it is beyond question that the Germans will ultimately be vanquished and will be compelled to pay an indemnity adequate to their enormous ravages in Belgium, it is also certain that the war indemnity will not be paid in cash. After the war Belgium will not have immediately at its disposal all the capital necessary for re-establishing, reorganising, and rebuilding all that has been pillaged, devastated, overturned, demolished, or burnt, and in the meantime, before they can begin the works of reconstruction, the Belgians will need the first essential to such an undertaking—money.

The crushing levies exacted by the Germans, the heavy monetary penalties imposed upon communities and individuals, the requisitions and robberies, the enforced production of cash, at usurious rates of discount, against German notes, the compulsory currency of these depreciated notes—in one word, the complete drainage of money by means which the German carefully elaborated long beforehand, and which applied with the utmost rigour, has thoro depleted Belgium of gold and silver. Consequ it becomes perfectly obvious that, after the wa Belgians will not be able immediately to resume payments. They will require credit until they had time to recuperate.

In particular, Belgian contractors will require siderable cash advances, as well as much credit. contented with reducing Belgium to ruins and car off all its money, the Germans have in every way dered impossible all attempts to reconstruct the t and villages that they have razed, or to repair the that they have destroyed; for, either by way of re tion or by sheer robbery, they have carried of military uses, the plant and material of a great nu of contractors, which come in handy for the excav of trenches, the construction of field fortification of bridges, the erection of barracks, huts, etc. I same way they have depleted the manufacturers contractors' stocks of cement, lime, bricks, stone, p material, iron, and wood. Not content with car off the products and the machinery of productio Germans have demolished the factories and shops; brickfields and quarries have been use entrenchments, and the plant they contained has destroyed by the Allies' guns or explosive mines, the Germans have stripped the machinery of particle of copper.

The Germans have made extraordinarily m calculations. They foresaw that after their vict which has fortunately become more and more i bable—unhappy Belgium, impoverished to ruin systematic extortion and destruction described a would be at their mercy, and they endeavoured to sure at the outset that they should have the exc monopoly of supplying everything of which the despoiled their victim. That is why they denuded the warehouses and factories of all ess materials, which they have either destroyed on th or transported to Germany; and that is why, also, have, in certain factories, either smashed the mach or dismantled it for deportation to Germany. respect to the building industry, this preconceived was the more successful because the Belgians hitherto got from Germany most of the materi construction, and contractors' supplies generally.

Some idea of the extent of the cash advance credit accounts that will be necessary may be fo if it be remembered that Belgian contractors d usually receive payment until the work (road-ma railway, canal, or bridge construction, building o mises, etc.) is either finished or well on towards pletion; but, nevertheless, the contractor must i meantime find wages for his workpeople, and obtain the necessary money either from his bank from the supply merchants.

This protracted and destructive war has obv placed the Belgian contractors in a very preca situation. Its sudden outbreak, and especiall invasion of neutral Belgium, arrested at once all c mercial and industrial activity. It meant, for Be contractors, the immediate and total cessation work, with consequent unproductivity of the c that had been sunk in it for wages, materials, a forth; and the moratorium prevented the recove debts and restrained banking operations. Those

ors who have not mortgaged their real or personal
erty to their bankers may possibly be able to
e something on what remains of it, but these
nate traders are very few in number; for in the
ng industry, as in every other industry and in all
nerce, invested and circulating capital is the prime
r of activity and prosperity.

these elements it is necessary to add the special
s of the war on those contractors whose works,
nplete or not handed over, are situated in the zone
ilitary operations, and on those contractors who,
e the war broke out, had incurred preliminary
nses for work that the war prevented.

nally, it is necessary to take into account the mone-
difficulties of the building owners, public and
ite. Certainly, German exactions have left the
rietors their landed estate, but it remains to be
n to what extent the lands have been involved in
ising of money to meet the exacting demands of
ermans.

is clear, then, that the necessary advances of
al for the reconstruction of Belgium will be very
derable.

the last annual general meeting of the National
ration of Building Trades Employers of Great
n and Ireland, the delegates from the Federation
nale Belge de l'Industrie du Bâtiment et des
ux Publics described the exact position to which
ermans have reduced the building industry of
um, and the delegates said that the Belgian con-
rs turned to England in full confidence that a
ry so rich and powerful would afford them the
sary aid for the immediate resumption of their
try and for the rapid reconstruction of Belgium.
e, of which the departments of le Nord and l'Est
shared to the full the sufferings of Belgium, will
all her energy, activity, and resources for the
ation of her own cruelly devastated departments.

e assistance of English capital, in the form of
s, of loans, or of advances of money, is therefore
t. Belgian contractors appeal to the leaders of
h commerce and industry to enter into financial
ndustrial business relations with them, and to
them the largest possible facilities for recovery
evelopment.

us examine briefly a few of the particulars that
l be brought to the notice of British men of
ess.

ordinary operations of commerce need not be
ecapitulated; but it is desirable to say that, for
time to come, it will not be possible to add to the
s f.o.b. and c.i.f. the clause "payement contre
nents." It will be necessary to grant extensions
e usual in commercial and banking circles and to
ate for the acceptance of bills of exchange at
, sixty, or ninety days against documents, and
face the possibility of renewals thereof on suit-
erms.

en the transaction is of sufficient importance the
r may arrange with the contractors for propor-
payments on account, and the contractor may
ge for payments to be met in like measure by the
ng owner, so that the dates of moneys received by
ntractor may fit in with the payments to be made
n for supplies. With this arrangement, which is
n Belgium, the merchant should be supplied with
nentary evidence of the payments made. The
of these payments would agree with the dates of
which the contractor is to receive as set forth in
nditions of contract, with which the merchant
make himself acquainted. When the work
ises special materials, or a special mode of
ion, and these conditions are a preponderating
nce in the work, these respective interests may be
ted by some form of provisional association for
rposes of that particular work.

h respect to patented or proprietary articles or
ds, the proprietors might issue licences and authorisations for their employment, subject, of course, to the usual conditions and guarantees; and it is suggested that the proprietors of such articles or methods might advantageously enter into association with contractors for the manufacture and exploitation of such articles in Belgium.

There are other financial combinations: First, arrangements for the building owner or public body to pay directly the price of the contract to the banker or to the merchant instead of to the contractor; but such arrangements are not in every instance authorised by Belgian law, and are very often forbidden in the terms of the contract. Secondly, the transference of the contract, an expedient that cannot be recommended, seeing that the personality of the contractor is so important a factor in the undertaking, and because, moreover, in such a case the voluntary consent of the building owner must be obtained, while in the case of an ordinary transference of debt his permission is not necessary.

These two arrangements are not recommended; they eliminate the contractor as such. The first reduces him to a mere superintendent of the work, without other interest in the ultimate result than the salary he receives for his services; the second transfers all the risks of the enterprise to the banker or the merchant, who becomes in effect the contractor, and has either to employ the original contractor to superintend the work, or to put in charge of it some other person under whose orders the original contractor is required to execute the work.

As a matter of fact, those combinations are usual, but such operations take place secretly, and have no existence and produce no effect except as between the contractor and the other party thereto. Transactions of that character are special operations, and foreign to the question of guarantee which we are discussing.

The creation in Belgium of a powerful bank of public and private works, or the establishment in Belgium of a branch of a similar British bank, is plainly indicated as a means of facilitating the relations between merchant and contractor. In Belgium certain banks do casual business of this kind, but there are none that occupy themselves with it principally or exclusively. A further development might be a bank that could render signal benefits to the workers.

But, it may be said, so far we have only detailed the ordinary conditions of business, which the war has suppressed, and the question we have really to consider is, what guarantees the Belgian contractors can offer in the special circumstances of the case. To this criticism we must give a frank reply. For the moment substantial guarantees are out of the question, except in some few instances of contractors who have come through the ordeal with more good fortune than others.

The Germans have ruined Belgium so completely that when at length they are cleared out of the country they will leave in it nothing that they could loot or destroy. Save for a few towns and villages that may have the good fortune to escape their ravages, they will leave nothing of Belgium but the land. For the most part Belgium will have to be reconstructed.

Let us take an extreme hypothesis, and assume the Belgian contractors to be utterly ruined by the war and possessing nothing but their energy and their professional skill. In that case, merchants, bankers, and building owners will have to deal with contractors who clearly can offer none but moral guarantees. By far the greater number of Belgian contractors, it is by no means to their discredit to recall, began their professional careers without capital, but with the strong moral guarantee provided by their reputation for intelligence, courage, energy, technical skill, and honesty. Upon that merely moral guarantee very many Belgian contractors, by gaining the confidence and the credit alike of building owners and of merchants, have founded successful businesses and executed important work.

(To be continued.)

SOME NOTES ON WIND PRESSURE.*

BY R. GRAHAM KEEVILL, A.M.I.Mech.E., M.C.I.

IT may be said that our modern knowledge of wind-pressure extends backwards only so far as the destruction of the original Tay Bridge in 1879. This bridge was part of the scheme for bridging the two firths—Forth and Tay—which was brought to a successful completion by the construction of a new Tay Bridge and the erection of the Forth Bridge. The latter has been opened for twenty-five years.

On December 28, 1879, whilst a train was on the bridge and a "gale of exceptional severity was blowing," one or more of the piers gave way, bringing down eleven 245 ft. span and 227 ft. span girders, precipitating the train and 74 people into the Tay. A Board of Trade inquiry was held, which showed that opinion among engineers about wind-pressure was in a state of chaos.

An endeavour was at once made by a Board of Trade Committee to put matters on a satisfactory footing. After examining wind records, they on May 20, 1881, recommended:—"That for railway bridges or viaducts a maximum wind-pressure of 56 lb. per sq. ft. should be assumed for the purpose of calculation." This immediately came into force for railway work, and was also adopted generally for structures on public works, although such adoption was purely arbitrary, or specified in local by-laws.

Much opposition was raised to this standard of pressure, because it was considered excessive and not justified by experience of existing structures. As far as buildings are concerned, the horizontal pressure assumed for designing has gradually been reduced to the 30 lb. per sq. ft. now often taken. Two questions of great importance arose, and these have since been practically settled by research, viz.:—(a) Were the wind velocities given by the anemometers then in use, correct? (b) What was the relation of wind velocity to wind-pressure? There are three methods for the measurement of wind:—(1) Velocity measured by the Robinson anemometer. (2) Pressure measured by a pressure tube anemometer. (3) Pressure measured by a plate or board set face to the wind.

Considering (1) the anemometer that bears his name was invented by Dr. Robinson in 1846, and is by far the most used of the various instruments which have been produced from time to time. It consists of four arms at right angles; at the end of each arm is a hemispherical cup. This instrument measures direct velocity, and Dr. Robinson, after experimenting, stated that the velocity of the cups was one-third the velocity of wind for all instruments, whatever their size. This is now known to be a fallacy, with the result that practically all records prior to 1902 were incorrect and generally much too high, a fact which justifies the distrust shown by the experts at the Tay Bridge inquiry respecting the records quoted then.

The discovery that the factor 3 for the Robinson anemometer was incorrect is due to the experiments carried out by Mr. Dines, and since confirmed by other authorities. These experiments consisted of placing anemometers on horizontal arms, which were rotated by means of a steam engine; $14\frac{1}{2}$ revolutions of this "whirler" constituted half a mile of space, whilst great care was taken to ensure accuracy in the results. The number of turns of the whirler and the revolutions of the anemometers, both of which were counted automatically, determined the relation between the distance travelled and the revolutions of the anemometers, and thus the value of the new factor, 2.2, was obtained.

The outcome was that the Wind Force Committee of the Royal Meteorological Society in 1902 adopted the factor 2.2 instead of 3 for the Standard Robinson anemometer. Thus, when the old factor was used, and the instrument indicated say, a velocity of 60 miles per hour, the use of the new factor reduced the velocity to 44 miles per hour. Converting these velocities into pressures by the formula $P = 3.003 V^2$, the 60 miles per hour velocity gives 10.8 lb. per sq. ft., whilst the velocity of 44 miles per hour gives a pressure of 5.8 lb. per sq. ft.—a very serious alteration, which doubtless explains the fact that chimneys, buildings, and bridges, which, by all the rules of the anemometers should have fallen down, are standing until to-day, or meeting an honourable end by the hands of housebreakers. This rotating anemometer has one great disadvantage, in that owing to the inertia of the instrument it does not record gusts of wind which may have a much greater velocity than the average values shown by this instrument. For instance, if the record is, say, 37 miles per hour, it shows that the cups have passed through a distance of 37 miles in the hour; at some part of the time they would be revolving faster than at others, but the record shows the average speed.

Another type of instrument is the pressure tube anemometer invented by Mr. Dines. This instrument automatically records all the varying pressures of the wind, and consequently all gusts and lulls that occur during a gale, whatever the velocity of the wind may be. The principles upon which the design of this instrument is based are that when the wind blows into the open horizontal mouth of a tube it causes an increase of pressure within it and in all air-tight arrangements connected with it. On the contrary, if the wind blows horizontally across the open mouth of the vertical tube, the column of air within the tube rises and the pressure is reduced within it, and in all air-tight arrangements connected within it. The great advantage of this instrument is that it not only gives a record of all phases of wind, but a practically perfect exposure can be obtained by mounting it on a high pole.

The third type of anemometer is like the second type, a pressure recorder, and is in general use, although now practically obsolete. This type consists of a board or plate which by means of a weather vane is kept facing the wind. The back of the board is fitted with springs which keep the board up to its work. The wind acting on the face of the board drives it backwards, compressing the springs; the pressure is then measured and recorded automatically by the movement of the board or the compression of the springs. This type of instrument has been in use for many years, and, like the Robinson anemometer, the earlier forms recorded pressures which are now known to be erroneous and much too high. The cause of the high pressures recorded up to 60 lb. per sq. ft. and over was faulty design, and the momentum of the moving parts. The result has been that high pressures have been recorded and quoted by authorities, when as a matter of fact the actual pressure was something less
than half those shown. This type o
sure boards was used at the Forth
during its construction.

When Sir B. Baker, in conjunctio
Sir John Fowler, undertook the res
bility for this great structure, it b
necessary to ascertain as nearly as p
what would be the probable wind-pr
on the bridge in the exposed positi
which it is situated. He accordingly e
on the top of the Old Castle on Inchg
three anemometers; the principal on
30 ft. long by 15 ft. high, approxi
the size of the side of a railway carri
those days, erected vertically, with i
faces facing east and west, this dir
being the most unfavourable from
the wind can strike the bridge. The
was hung in a frame and fitted wit
springs at the four corners to adju
board to its normal position. The
ment of the board was communica
the registering apparatus by mea
wires. To ascertain to some exte
effect of small local gusts plates were
18 in. diameter in holes cut out
centre of the board, and at the top
hand corner, and arrangements made
gister the pressure on them separate
circular plate with an area of $1\frac{1}{2}$ sq. f
erected to face in the same directio
8 ft. away from the large board, an
vided with means for registering the
sure. The third was a revolving
also with an area of $1\frac{1}{2}$ sq. ft. and
with a vane, so that it always fac
wind. These anemometers, althou
ing good results, were not intended
very accurate results.

The records of the violent gales
that the average on the large board i
of the average on the small gauge, an
the average on the large board is o.
the average on the revolving gaug
we round these figures up we can sa
the pressure on the large board i
eighths the amount shown by the
gauges; a figure to be remembered
considering the records from the sma
mometers in general use, and ap
them in design of buildings of large e
area. After the completion of the
five revolving gauges, with a plate
$1\frac{1}{2}$ sq. ft., were fixed on the bridge,
continuous record was obtained.

These results from the Forth Brid
interesting and valuable in that the
records of an exposed position and
siderable differences in height and
From a consideration of them with
reliable information now available, t
pear to be high in value and to be influ
by gusts and possibly by some mom
of the plates of the anemometers.

The most valuable information av
respecting wind velocities is undou
that given by Dr. Shaw in his report
Beaufort scale of wind force, which i
piled from the records of the anemo
at various meteorological stations.
information shows the number of g
wind exceeding 37 statute miles
hour, grouped according to the ma
hourly velocities recorded by Robinso
mometers. The point that is most st
after a study of the records is tha
sures over about 12 lb. per sq. ft. ar
It must be borne in mind these reco
averages, and that individual gusts
give higher pressures on small areas

Dr. Shaw, in his Reports and
randa, No. 9, compiled in connectio
the Advisory Committee for Aeron

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* Extracts from a paper read before the Concrete Institute.

"the ordinary 'gustiness' of a wind" as the "variation of the y, and direction of the wind, while erage hourly velocity remains prac- unchanged, or increases, or de- s gradually. The intervals of these ıre of the order of some fraction of a ; they are largely a question of ex- of the anemometer."

ther type of wind is known as the squall," which, Dr. Shaw says, sets a temporary wind of great violence, panied by sudden changes of all the ological elements, and generally also nder and lightning. These are the langerous of all winds, with the ex- ı of tropical hurricanes, which do not n our latitude.

relation between coast and inland is a practical question which often when an important structure is to be ed in some locality where building tions are of an elementary character, -existent, and where the only guide possession of reliable information, s that already quoted, but which has ıken at one or more exposed stations he coast, whilst the proposed struc- ıay be situated some distance inland. ıaw says that, "speaking from the xperience of weather maps, we may at a westerly wind of force 8 at an d western station will be represented nland or east coast station by a wind f 5. The corresponding reduction in y is from 42 to 21 miles per hour. ionally, therefore, we may say that face wind velocity" (that is, winds ill affect a structure), "at a reason- ell-exposed station inland, or at a coast station for an off-shore wind, is reduced to one-half the velocity of an open coast station." As pressure is dependent on velocity it follows that the pressure will be reduced to a corresponding amount.

When dealing with a building of large exposed area, there is often a difference of opinion, in the absence of regulations, as to what wind pressure to adopt, i.e., whether the maximum average velocity, or the greatest gust. There is little available information as to what may be termed the area of a gust, but it is considered to be comparatively small. In a well-designed and well-constructed structure, it would appear to be good enough to take the maximum velocity, and trust to the continuity of the structure to distribute local gusts.

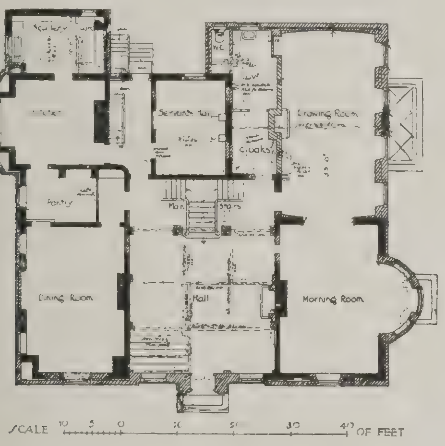
The presence of windward and leeward pressures on experimental boards and structures has been known for many years, and many experimenters and writers have dealt with it. The windward pressure is, of course, caused by the wind striking on a surface exposed to it. The leeward pressure appears to be caused by the flow of air round the edges of the obstacle, tending to draw some of the still air, behind with it, and causing a partial vacuum. The direct pressure and the suction of the vacuum must be added together in order to arrive at what is known as the total pressure.

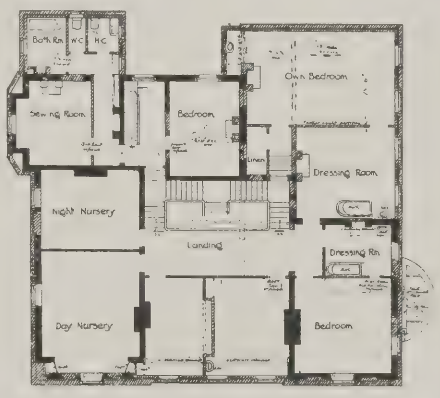
Up to the present, assumed wind pressures, which are undoubtedly excessive, have been in general use for designing, and very safe structures have been the outcome; but with the advance of knowledge, the very heavy structures, now common, will gradually give place to more scientific designs, and a corresponding saving of material. New methods now being evolved will then become of the greatest importance.

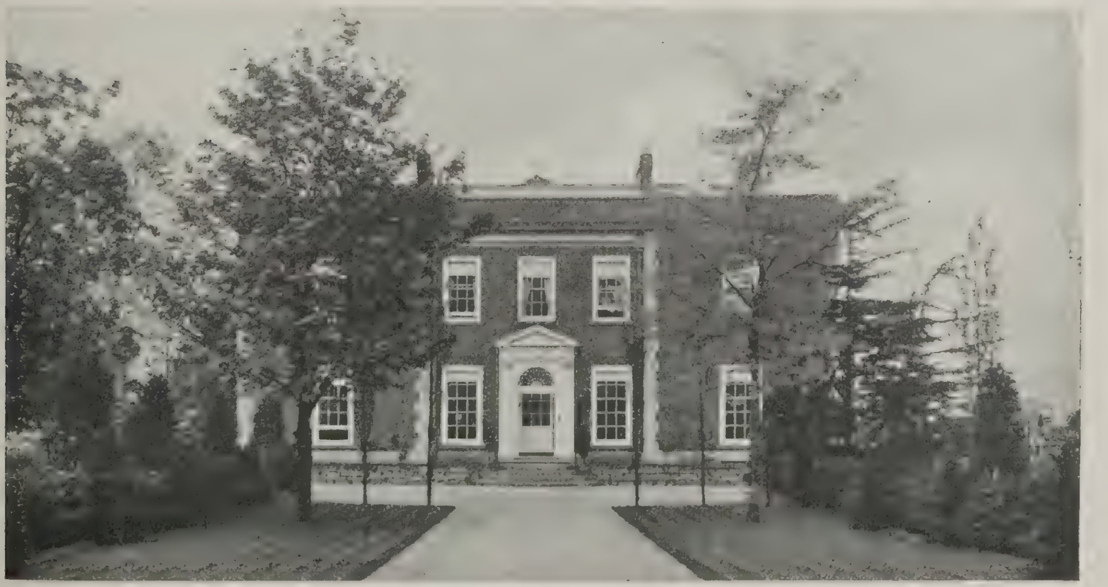
The Woolworth, at New York, is the highest office building in the world; 760½ ft. from the street level to base of flag-pole on the tower, whose heaviest basement columns carry on each 4,740 tons, of which 1,300 tons is due to the action of the wind; whilst the weight of the steel framework is 24,100 tons.

KERFIELD HOUSE, KNUTSFORD, CHESHIRE.

Kerfield House, Knutsford, Cheshire, is an interesting instance of the possibility of investing with architectural distinction an old house from which that quality is wholly lacking. The old house was built of white brick, and had its roof covered with Welsh slates. Mr. Percy Scott Worthington, F.R.I.B.A., the architect who was entrusted with the alterations, gutted and re-planned the interior, and faced the walls externally with Ruabon bricks having a "dragged" face. Recesses were filled up, and excrescences were cut off, windows and doors were respaced, and the roof was, as far as possible, hidden by a parapet. The hall and staircase take the place of a number of small rooms and of the old staircase. The dining-room was remodelled, but not altered in size; the morning-room was panelled in oak, and a circular window added; the drawing-room, with bedrooms above, is entirely new, and the kitchens, lavatories, etc., were rearranged and remodelled. The panelling and floors are of English oak.







KERFIELD HOUSE, KNUTSFORD. PERCY SCOTT WORTHINGTON, M.A., F.R.I.B.A., ARCHITECT FOR THE ALTERATIONS.

BEAUTY THE LOGICAL EXPRESSION OF STRUCTURE.*

BY F. RADFORD SMITH.

(*Concluded from page* 272, *No.* 1066.)

Gothic in Italy.

Gothic architecture never took the same hold in Italy that it did in Western Europe, but at the same time a type of Gothic was the only method of building that had been general in the North of Italy when that district began to shake off its long sleep in the fourteenth century. With the awakening of the Renaissance in Italy, and while the Gothic builders were still pursuing their craft into the decadence of the Perpendicular period in England, came a desire to imbue Italian art with some spirit of nationality different from the unrestrained and semi-barbaric irregularities of Western Europe; and what is more natural than an attempt to return to the forms and grandeur of Ancient Rome?

The cathedral at Florence was still unfinished, and, in accord with the national desire, it was decided to complete it after the Roman manner—that is, with a dome. Imagine a set of men steeped in generations of Gothic constructive tradition attempting to build a second Pantheon dome! The value of the rib was too firmly implanted ever to be lost, and so we see in the Duomo how Brunelleschi, in endeavouring to emulate the Pantheon according to Gothic principles, really gave us a vault turned inside out and upside down. The perfect frankness of the masonry ribs carrying the lantern, and the frankly lighter filling between are to be noted. This structure is frequently referred to as the crowning beauty of Florence, and I venture to think that any beauty it possesses lies in the frank expression of the purpose of the parts.

At this time there were in process of erection the semi-fortified seats of the Barons in France and England, and in Italy we find their counterpart in the palaces of the rich, but in this case erected in cities, and hence of very different forms. The Riccardi is one of the earliest, and it may be noted that with the attempt to renationalise a style after so long a lapse it is not surprising that forms of a more conventional type appear more frequently than heretofore. Also, the individuality of the designer for the first time begins to assert itself, and so from now on we may expect to find the work in constantly more and more direct relationship to that of our own time. The more varied purposes of the building also modify the forms of the structure, and the composition of society, becoming gradually more approximate to ours, is more apparent in its influence upon architecture. Indeed, as architecture may be said to be the concrete expression of contemporary life (Life in the widest sense) it is impossible for it to be otherwise. The fact that these palaces were now erected on confined sites led to a desire for economy of space, and in following the Roman scheme, as, for example, the house of Pansa, the interior court was the chief feature.

The endeavour to return to the Roman type is evidenced by the reintroduction of Classic form and methods as in the symmetrically dignified and orderly spacing of the windows, the introduction of a more classic type of column in the windows, and the marking of each floor with a cornice after the manner of the Colosseum.

The Gothic tradition, however, was so ingrained in the blood that these cornices were as much like string-courses as cornices. Gothic truthfulness of the expression of constructive value was followed in the gradual lightening of the wall at each succeeding floor upwards, and the rustication is treated logically.

In general it may be said of this period that the Classic forms were grafted on to Gothic construction. Gradually, however, as the understanding of Roman dignity resulting from orderliness and symmetry became better developed, we find that the Gothic construction was combined with it in a rational manner. In the dome of St. Peter's we have an excellent example of this, for do not the ribs of this Gothically constructed dome have their thrust apparently taken up by the buttresses formed at last in an orderly, stately, and dignified manner by the use of the Classic columns round the drum?

The Dome a Gothic Feature.

Just here I would like to interject a theory that I am very partial to: We see that the first structure that can be considered as a dome in the constructive sense—the Pantheon—was quite as Gothic in its basic nature as it was Classic, as is obvious from the ribbed construction employed. Next, the Duomo was but a Gothic vault turned inside out and upside down, whilst in St. Peter's the Gothic princple is carried a step further. Every dome since follows the same lines, and hence the theory that the dome considered as the outward expression of its structure is really in fact a Gothic feature and not a Classic one, as it is so often spoken of as being.

Of the development in palaces we have a later example in the Rezzonico, showing a type more nearly conforming to modern practice. In this façade full advantage has been taken of every constructive device then known. The combination of arch and column has reached almost to perfection, and yet each is perfectly logically expressive of its function. At the same time we are struck by the beauty of the proportion of part to part. The infallible canons of proportion of form to cause appear to be thoroughly appreciated, and if ever a work of architecture deserved to be styled "Frozen Music," surely this is such a one. The perfect rhythm running through the whole has never been excelled in the most perfect music yet written.

About this time architecture seems to have risen to sublime heights and, as with music, after a long period of greatness decadence sets in. Perhaps "Frozen Ragtime" might not be considered as an inappropriate epithet for a building in which the rhythm is syncopated, and violent contrasts in scale interrupt the harmony.

Social and Architectural Developments.

As the architecture of France was to be dealt with by another lecturer, the author resumed his observations on English developments. Just before the date of such buildings as King's College Chapel the Barons were getting so powerful that Henry VII. ordered the disbanding of their standing armies. Immediately before this time, then, we naturally expect to find the homes of these Barons in the nature of fortresses, and Linlithgow is perhaps not the least famous. Any beauty that such a building can be considered to possess certainly is due to the logical expression of function it exhibits. The appearance of imposing strength is the direct outcome of its purpose, and is shamelessly and truthfully allowed to be apparent. With the disbandment of the standing armies the need for such security disappears; but the habit of tradition dies hard, and thus in Drumlanrig Castle the angle tow the archers are still retained, but purpose is obviously not the same, apparent by the increase in the w space. With the gradual emancipat society, there arose a middle cla longer possessing the power of the B but nevertheless of sufficient weal be able to erect their own houses in stantial manner. As this class sto peaceful power rather than the m type of power exercised by the B what could be more reasonable than with the disappearance of attac violence the type of construction em should be based rather on the tradit the churches than on the tradition fortress? In such a building every f is obviously functional, even to the nacles at the bottoms of the gable co If there be any danger of the sloping of the gable coping slipping down the extra weight of this finial adeq expresses its function in securing kneeler at the base.

In Cobham Hall we see the same carried out in a district where ston comparatively scarce, and so it is only round the openings, etc., where its g strength is actually required. Eve size of the openings logically express function of the stones, whose dime would hardly allow of greater width

As the more intellectual influence Renaissance began to make itself f England we observe curious endeavo graft on to the national type the orderly symmetry of Classicism.

Upon the return from Italy of Jones steeped in Palladianism and enthusiasm for the more cultivate he had seen, we at last see in Eng finished piece of concrete scholarship logical expression of function, dignit refinement this work stood supren generations, and its influence is still us. Long may it rest there!

Tradition and Individuality.

Having shown and commented u number of slides illustrative of furth velopments, the author concluded:

Without a knowledge of tradition impossible to produce anything, bu very exercise of that knowledge can a hindrance to the production of any except that which is fantastic unless knowledge is tempered with due reg the spirit of our own time. The ex of uncultivated individuality, howev terprising, leads one aimlessly astray is grotesque in that it signifies a colossal conceit than reason can ju At the same time the exhibition of scholarship without enterprise lea where, and results in stagnation. F art to be a living art it must ackno as its driving force the spirit of the tempered only by the reasoned lo tradition.

Housing in Renfrew.

Renfrew Town Council continue to hard in the interests of the ho scheme against the Local Gover Board. The latter body had w pointing out that no loans cou granted from the Public Works Co sioners except where the expenditur urgently required in the national in for the furtherance of the war or wh was an urgent necessity for reaso public health. A reply was sent in it was stated that munitions of war being largely manufactured in Re and that additional housing accom tion for the men engaged in the wor very much required. It was also p out that many more houses were nec in the interests of public health.

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* Extracts from a paper read before the Newport Doric Club.

IETIES AND INSTITUTIONS.

Future Developments in Heating and Ventilation.

a meeting of The Society of
ieers (Incorp.), Mr. A. H. Barker,
c., B.A., B.Sc., read a paper on the
subject. The twin sciences of heat-
id ventilation have received but little
ion in their scientific aspects. The
exity of the factors that go to make
given result, and the difficulty of
ng in terms of exact science what that
is or should be, are reasons for lack
gress in the science of the subject,
dded to this one has to take into
it the variability of human physiology
sychology as an essential part of the
m.

siologists are not even agreed upon
was a healthy temperature for human
to live in. The heating and
iting engineer aims at producing
rt but is baffled by the fact that a
comfortable only when he thinks he
Air which, judged by chemical
is, is impure may feel fresh and
and vice versa.

only legitimate function of the
er is to produce and control specified
ients of air and other effects, while
uld be the duty of the physiologist
ygienist to specify what are healthy
mfortable conditions. In connection
heating, the expression "tempera-
a room" is generally understood to
the reading of a thermometer
ded in the room, but this reading
ot necessarily indicate the tempera-
the surrounding air or form a reli-
iide to the feelings of the occupants
room. The air temperature, the
temperature, the quantity of con-
heat and the quantity of radiant
iust all be determined, but first the
between the thermometer reading,
temperature and the radiant tem-
e must be determined.

freshness of air in a building
s on keeping the air temperature
ly low and the radiant temperature
The chemical composition of the
, within wide limits, no effect on the
organism, whereas its temperature
midity are very important.

paper described experiments made
versity College and the apparatus
connection with them, and dis-
briefly some problems which it is
to solve experimentally.

to Post-Office-to-Paddington Tube, and Southwark Bridge.

notable visits will form part of the
ning meeting of the Institution of
ial and County Engineers, which
lace in London, June 24 to 26, one
e being to the new underground
he first State railway in this country
the General Post Office to Padding-
The visitors will assemble at the
iry working site at Paddington, and
conducted round the works by the
itatives of Mr. Dalrymple Hay,
s been appointed by the Postmaster-
to superintend the construction of
nel. Possibly an opportunity will
itself of offering congratulations
V. Slingoe, the engineer-in-chief to
t Office, on his recently bestowed
ood, an honour which may be
l as a compliment to the profession.
ark Bridge, which is now under-
construction, will afford much food
ight to the fortunate members of
ty making the second visit. The
omprises the removal of the old
irk Bridge and the erection on
the same site of a new bridge with improved gradients. The old Southwark Bridge consisted of three cast-iron arches, the largest span being 240 ft. The bridge was designed by Rennie, and was opened to public traffic in 1819. The Corporation of London decided upon its removal on account of the steepness of its gradients, 1 in 18 on the City side, and because its piers were out of alignment with the other bridges in the vicinity. The new bridge consists of five steel arches, and the worst gradient is about 1 in 33. At the present stage the old bridge has been entirely removed, and the foundations for the new piers are in hand. Each of the new piers will be of stone and will be founded on caissons sunk into the bed of the river. Each of the arches will be constructed with seven ribs, and upon these the steel flooring supporting the roadway and footpaths will be laid. The width between parapets will be 55 ft., the roadway being 35 ft. in width and the footpath 10 ft. The old bridge was 42 ft. 6 in. wide.

Trinity House Corporation.

With reference to the arms of the Trinity House Corporation which we publish as one of the supplementary plates in the present issue, it is of special interest to note that a visit to Trinity House, Tower Hill, was paid on June 12 by students attending the University Extension Lectures on the history and architecture of London. Mr. Allen S. Walker explained that the first Trinity House was at Deptford, where Sir Thomas Spert founded the Guild of the Holy Trinity in 1515. The Guild was incorporated by Henry VIII. in 1529, who authorised "the shipmen and mariners of England" to establish their Guild of the Holy Trinity and St. Clement in the parish church of St. Nicholas, Deptford. Among the powers of the Guild was that of preventing foreigners from shipping in our vessels without licence. They settled disputes between masters and men in the merchant service and punished mutiny. If a mariner were caught swearing they fined him a shilling, which went to the ship's poor-box; if he were found drunk, a rather unlikely thing, he was fined a shilling; but absence from prayers on board ship meant a fine of sixpence only.

In the time of Elizabeth the Corporation was entrusted with surveying the Thames, and every master had to take the shot out of his cannon at Gravesend, under a fine of 20 nobles. The Trinity Corporation built its first lighthouse in 1680, and at the present time it managed the lighthouses and buoys round our coasts. Towards the end of the eighteenth century the meetings of the Corporation ceased to be held at Deptford, and about 1795 the members moved to the present Trinity House on Tower Hill, quite a typical work of the Late Georgian period, built from designs by Samuel Wyatt. Every Trinity Monday it was the members' custom to go down the Thames in their state barge to visit their almshouses at Deptford and to call at their old Hall, strewn with rushes, where the Master and Deputy-Master took the oath of allegiance and the loving-cup was passed round. The Duke of Wellington, who was Master for many years, always carried a bouquet, which he gave to the fairest young girl present.

The roll of Masters, said the lecturer, contained many famous names, including the Duke of Albemarle, Samuel Pepys, Sir George Rooke (the hero of Gibraltar), Pitt, and King George V. Trinity House contains a most interesting collection of naval busts, portraits, models of ships, and relics.

R.I.B.A. ELECTIONS.

Last week we gave the results of the elections to the Council, etc. We now add the names of the successful candidates for the various committees.

Art Standing Committee.

Fellows.

Edward Guy Dawber; William Adam Forsyth; John Alfred Gotch; Gerald Callcott Horsley; Arthur Keen; Henry Vaughan Lanchester; Halsey Ricardo; Giles Gilbert Scott; Henry Heathcote Statham; Edward Prioleau Warren.

Associates.

Robert Atkinson; Hubert Springford East; Leonard Rome Guthrie; Basil Oliver; Alfred Wyatt Papworth; Philip Edward Webb.

Literature Standing Committee.

Fellows.

Arthur Thomas Bolton; David Theodore Fyfe; Andrew Noble Prentice; George Halford Fellowes Prynne; Albert Edward Richardson; Edwin Alfred Rickards; Charles Sydney Spooner; Arthur Stratton; Charles Harrison Townsend; Paul Waterhouse.

Associates.

Martin Shaw Briggs; William James Davies; Herbert Passmore; Stanley Churchill Ramsey; Walter Lewis Spiers; William Henry Ward.

Practice Standing Committee.

Fellows.

William Henry Atkin-Berry; Max Clarke; Herbert Osborn Cresswell; Alfred William Stephens Cross; Matt. Garbutt; Edward Greenop; George Hubbard; David Barclay Niven; Herbert Duncan Searles-Wood; Alfred Saxon Snell.

Associates.

Horace William Cubitt; Percival Maurice Fraser; Edwin Gunn; Henry Albert Saul; John Douglas Scott; Herbert Shepherd.

Science Standing Committee.

Fellows.

Harry Percy Adams; Robert Stephen Ayling; Horace Cheston; Allan Ovenden Collard; Alfred Conder; William Edward Vernon Crompton; Bernard Dicksee; Frederic Richard Farrow; Charles Stanley Peach; Prof. Ravenscroft Elsey Smith.

Associates.

Robert John Angel; Henry William Burrows; William Robert Davidge; George Leonard Elkington; Digby Lewis Solomon; Ernest William Malpas Wonnacott.

R.I.B.A. NEW FELLOWS AND ASSOCIATES.

In the list of new Fellows published in last week's issue, page 273, there occurred a double error. "J. A. Stuart (Birmingham)" should read "John Stuart (Wakefield)," and the name J. A. Swan (Birmingham) should have followed. Obviously the two entries were confused in making the copy from the official list, in which, of course, they are correctly rendered.

With respect to the list of new Associates, Mr. E. Godfrey Page, A.R.I.B.A., kindly calls attention to the interesting fact that Mr. Habib Basta, A.M.I.C.E., etc., of Sohag, Upper Egypt, is the first Egyptian to obtain the Associateship of the R.I.B.A.

OBITUARY.

Mr. J. Macvicar Anderson, F.R.I.B.A.

Mr. J. Macvicar Anderson, who died at his residence in Stratton Street, on June 9 at the age of eighty, was a native of Glasgow, and a nephew of Mr. William Burn, an architect of some eminence, to whom Mr. Anderson was articled. The late Norman Shaw was a fellow-pupil. Mr. Anderson was elected an Associate of the R.I.B.A. in 1864, a Fellow four years later, was its Honorary Secretary from 1880 to 1889, and after becoming one of its Vice-Presidents occupied the President's Chair from 1891 to 1894. Some of his chief works are enumerated in an editorial note in the present issue. On settling in London in 1853 Mr. Anderson joined the Scots Church in Crown Street, and he became its Session Clerk, an office he continued in the new church of St. Columba, which he designed, and of which he was really the founder and was afterwards a mainstay. He was Honorary Architect to the Royal Scottish Corporation and the Caledonian Asylum, interesting himself deeply and practically in these and other Scottish benevolent institutions. He was also a Fellow of the Royal Society of Edinburgh and a life trustee of Sir John Soane's Museum. The accompanying portrait is from the painting by the late Charles Furse, A.R.A.

An Architect's Bequests.

Mr. Thomas Groom Barker, of 60, Gilda Brook Road, Eccles, and of Messrs. Barker, Ellis, and Jones, architects, of Cooper Street, Manchester, who died on March 6, aged eighty-five, left estate valued at £14,912 gross, with net personalty £10,634. The testator left £600 to the Manchester Infirmary; £400 each to the St. Mary's Hospital, Manchester, and the Victoria University; £150 each to the Royal School for the Deaf and Dumb, Old Trafford, and the Manchester Grammar School, Old Millgate; £150 to the Chethams Hospital; and £50 each to Dr. Barnardo's Homes, the Wood Street Mission, Manchester, and the National Lifeboat Institution. The residue of his property he left as to one-half to the Institute of Architects for general purposes, and one-half to the Victoria University, towards the endowment fund of the Chair of Architecture.

SPECIAL LEGAL REPORTS.

The Right to Disapprove of Plans.

The King v. Foots Cray Urban District Council.

June 8. Court of Appeal. Before Lords Justices Swinfen Eady, Phillimore and Bankes.

This was an appeal by Messrs. Hoare and Co. from a judgment of Justices Ridley, Avory, and Lush, sitting in the King's Bench Divisional Court, refused to grant a mandamus to compel Council to approve certain plans of a bu ing to be erected in their area, holding their decision was covered by authority having been held that where a per pulled down part of a building and ceeded to re-erect that part, then the w of the building, including the part that pulled down, was by statute deemed t a new building, and therefore the whol the building must comply with the pl Messrs. Hoare appealed from this deci and the Court of Appeal now allowed appeal and reversed the decision of King's Bench Divisional Court, directed the mandamus to be issued. appeared that Messrs. Hoare had car out certain alterations at a building proposed to make certain alterations to rest of the building, and the question a whether the whole of the building wa new building for the purposes of the laws, or whether only such part as taken down and re-erected became the building for the purposes of the by-la Plans had been submitted but were approved by the Council.

Liability for Highways.

Wythes v. Mayor, etc., of Bromley

June 8. King's Bench Division. Before the Chief Justice and Justices Ridley and Avory.

This matter came before the Court magistrates' case. It was an appea Mr. Wythes, the owner of consider property at Bromley, from a decision o Justices who had ordered him to pa large sum towards the repair of highw called Blackbrook and Barfield Road Bromley.

Appellant claimed that they were an highways and reparable by the inhabit at large.

The appeal was dismissed with cost

The Lord Chief Justice said the ap lant was the owner of the Hickley Estate, a part of which abutted on the roads in question, and he had been liable by the Justices to pay his shar the cost of repairing the roads on ground that the obligation to pay the of such repair did not fall on inhabitants at large. The question i case was whether there was evid before the Justices upon which as a m of law they could conclude that these roads were reparable by the inhabi at large. The appellant said that b order of 1869 these two roads were su tuted for other roads as highways, an the old roads were reparable by the p the substituted ones came within the s category. The mere fact that the corp tion had never repaired the roads was sufficient to prove that they could n called upon to do so. There was doubt that the respondents had wa the roads at the appellant's request, that the agent of the estate had stated it was about time the corporation took roads over. Of course the opinion o agent that the roads were reparable b appellant might not be of any value, b seemed to indicate that the appellant w opinion that he was liable. The appe was the person who should know whe he should do the repairs or not, and accepted the burden without demur many years and did not complain, that was evidence from which the m trates could draw the inference that repairs were not liable to be done b inhabitants at large. He therefore to the conclusion that the Justices right and the appeal failed.

Justices Ridley and Avory concurr

(*Legal Reports continued on p. xi*

THE LATE MR. J. MACVICAR ANDERSON, F.R.I.B.A., F.R.S.Edin.,

PRESIDENT, R.I.B.A., 1891-4.

(From the Painting by the late Charles Furse, A.R.A., in the Royal Institute of British Architects.)

PUDLO

MAKES CEMENT WATERPROOF

The Ravages of Time.

Why do the Egyptian and Greek Temples wear so well? Because of the low rainfall.

Why does exposed marble so soon lose its arrises in humid climates?

Why does Cleopatra's Needle in less than half a century of British climate begin to show the Ravages of Time?

Humidity is the Reason.

Especially in a "frosty-rainy" climate like ours it is necessary to prevent the access of rain and of dampness.

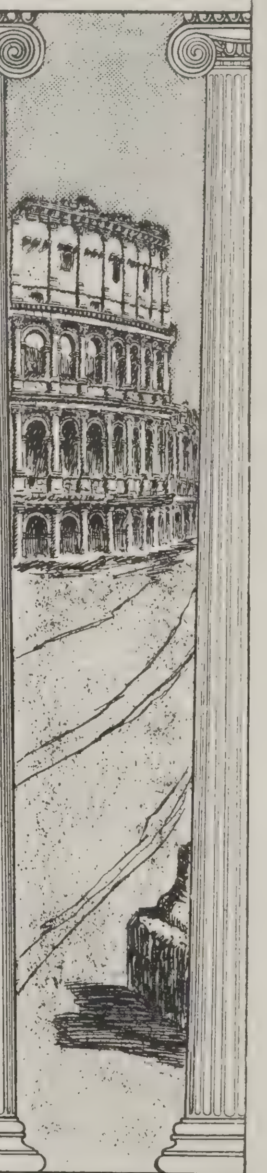
Walls which hold moisture expand and disintegrate under frost.

Prevent all such decay by using Pudloed cement. Pudlo is regularly specified for setting brick and stone work, for rough cast and all cement renderings.

Use Pudloed cement for flat roofs, basements, stoke holes, baths and tanks, and for screeding floors to prevent rising dampness.

BRITISH!—(It always has been British).

Manufactured by Kerner-Greenwood & Co.,
Ann's Place - - King's Lynn.



Euston Road Line of Frontage Question.

The London County Council were, on June 11, successful in their appeal to the House of Lords against an order of the Court of Appeal in a case involving a question of the general line of buildings in Euston Road, the respondents being Mr. William Leslie Clode and others. The Court of Appeal declared that the general line of buildings on the north side of Euston Road, between Hampstead Road and Osnaburgh Street, was at the date of the certificate of the architect, and still is, the inner edge of the pavement. The L.C.C. contended that the line of the fronts of the old houses in the part of the Euston Road in question is the general line of buildings, while the respondents maintained that there was no evidence to show that the existing houses had been erected upon new foundations, and that all the existing buildings built up to the inner edge of the pavement are lawfully there, and must be taken into account in fixing the general line of buildings in that part of the road. The House of Lords (Earl Loreburn, and Lords Parker, Sumner, Parmoor, and Wrenbury) decided in favour of the L.C.C., holding that the view taken by Mr. Justice Ridley, affirming the opinion of the Tribunal of Appeal, was right. The argument occupied five days.

COMPETITION.

The Govan School Board have decided to hold an architectural competition for the erection of two new schools. The competitions are limited ones, about 15 architects having been invited to compete.

NEWS ITEMS.

Alterations to Shawlands Academy, Glasgow.

Alterations are to be carried out at Shawlands Academy, Glasgow, for the Eastwood Parish School Board. Mr. Thos. Baird, jun., Glasgow, is the architect.

St. Bartholomew's, West Smithfield.

A thirteenth-century window in the church of St. Bartholomew-the-Great, West Smithfield, was reopened last week by the Bishop of London, who at the same time dedicated a choir vestry. The Lord Mayor and the Lady Mayoress, the Sheriffs, and Sir Aston Webb were present at the ceremony.

Harrogate Bells.

The bells of old St. Mary's Church, Harrogate, the only peals of bells in the town, have just been removed from the belfry preparatory to being hung in the new Parish Church of St. Mary, which is being erected out of the £20,000 left by the late Surgeon-General Lofthouse for the provision of a memorial church.

Asylum Extensions, Cambridge.

A large extension of the Fulbourn Asylum, Cambridge, is under the consideration of the Committee of Visitors. The proposals include the following: New block, with flat roof, for forty-four female patients; new administrative block and alterations to existing centre block, isolation hospital.

"Huts" for Wounded at St. Thomas's Hospital.

Huts to accommodate over 300 military patients in the grounds of St. Thomas's Hospital, London, have been erected. Although technically described as "huts," the new wards are in reality substantial buildings, of good appearance, and very neat and comfortable inside. The walls are composed of slabs of asbestos on a wooden framework, lined inside with fibrous plaster. The great thing about the huts is that although they are so substantially built, yet at the same time they are of such a temporary character that all signs of them could be removed in a few hours.

A New Church.

The first portion of St. Aidan's Church, Bamber Bridge, near Preston, has recently been completed from designs by Mr. Frank R. Freeman, of Bolton, whose drawing is hung in this year's Academy. It consists of nave and side aisles, and west end baptistery and porch. Messrs. E. Lewis and Son, of Blackburn, are the contractors.

Waterproofing Underground Heating Chambers.

Underground heating chambers are severely tested by the wet weather we have had during the past winter, so that a material which will assure their watertightness is very desirable. In this connection the heating chamber of the Birkdale Liberal Club at Southport was recently lined with Pudloed cement, and we understand the result is wholly satisfactory.

Measurement of Plasterers' Work.

"A Method of Measurement for Plasterers' Work, Authorised by the Surveyors' Institution and the Quantity Surveyors' Association," has just been issued, price two shillings, and may be obtained from either the Institution (12, Great George Street, Westminster), or the Association (Hon. Sec. and Treasurer, Mr. Arthur G. Cross, F.S.I., Caxton House, Westminster). Fibrous plaster, and wall and floor tiling are included.

Simplex Conduits Catalogue.

Messrs. Simplex Conduits, Ltd., Garrison Lane, Birmingham, have just published a new edition of those sections of their catalogue dealing with conduits, conduit fittings, distribution boards, fuses, switchgear, watertight fittings, and cables. The list has been rearranged to a more convenient size, and many new fittings and devices have been introduced. A copy of this list should find a place on the desk of every architect, engineer, and contractor. It is copiously illustrated.

Cement for Retort Settings.

According to "Engineering," in view of the great influence of the quality of the cementing material used for jointing on the good working and life of retort settings, the Refractory Materials Research Committee of the Institution of Gas Engineers, in conjunction with the manufacturers, is arranging for the investigation of this material, more especially with regard to its permanent contraction and expansion, and to the effect of the addition of varying proportions of fine grog to the clays used for the cement.

New Bridge at Penwortham.

The opening of the new bridge over the Ribble at Penwortham took place at Preston on June 10. The bridge reduces the distance of the main road from Liverpool and Southport to Preston and the North by 1,000 yards, besides avoiding a dangerous turning on the old narrow bridge which has hitherto done duty. The structure has been erected by the Lancashire County Council at an estimated cost of £38,000, of which the Preston Corporation has contributed £5,000. The old bridge, which is entirely inadequate for
present-day traffic, was built under an
passed in 1757, a bridge erected se
years earlier having collapsed shortly
its completion.

Defence of the Realm: New Regulati

Further regulations relating to
Defence of the Realm, contained in a
plement to the "London Gazette"
lished on June 12, include the follow
references to factories and worksh
which are here reproduced as bein
some importance to contractors: "
power of the Secretary of State to exe
from the Factory and Workshop Act,
in case of public emergency any fac
or workshop of the Crown or which is d
work for the Crown, is extended to f
ries and workshops in which he is sati
that by reason of the loss of men thr
enlistment or transference to Governm
service, or of other circumstances ari
out of the war, exemption is necessa
secure the carrying on of work requir
the national interest."

Fire at Dunrobin Castle.

Fire broke out on the morning of
13 in Dunrobin Castle, the Highland
dence of the Duke of Sutherland.
outbreak originated in the top floors o
south and west portions of the castle,
the flames, aided by a strong easterly w
soon obtained a firm hold
spread rapidly to the east wing and
to the north tower over the grand entra
For three hours the fire was restricte
the upper attics, but it then spread t
second and third floors. Territo
under training in the district ren
valuable aid. Some wounded soldie
the castle were removed, and the Te
rials transferred to a place of safety
of the valuables in the castle, inclu
the valuable collection of pictures.
tenant Liddell, 2nd-5th Seaforths, whe
controlling a section of the operations
standing on a roof when a portion
gave way, and the officer was hurled t
floor of the room below and seriousl
jured.

New Light on Louvain.

Herr Fuglister, the Swiss subject
was in Louvain during its destructio
the German troops, recently return
Switzerland and delivered lectures on "
Truth About Louvain," illustrated
lantern slides from his own photogr
Lectures were given in Neuchâtel, Ge
and other French-Swiss towns, exc
much interest. The German Minist
Berne sent a notice to the Swiss Press
the German Government is shortly
lishing a book about Louvain in whic
full truth would be stated. When
Fuglister wished to deliver his lectu
Berne the police authorities forbade
the ground of its being contrary to
neutrality, owing to the serious ac
tions made by this eye-witness ag
Germany. On Friday evening in
week, Herr Fuglister invited his fr
privately to hear his lecture in a ce
hall in Berne. The French Ambas
and members of the British, Belgian
Italian Legations all went to hear it
sides hundreds of Swiss, only to fin
doors of the hall shut and guarde
police. Herr Fuglister, it appeared,
been arrested and his slides confiscate
later telegram from the "Morning P
correspondent at Berne states that
Bernese police authorities have ret
Herr Fuglister's slides, the latter h
informed them that he can prove tha
German authorities offered to buy bac
slides and documents, and at the
time purchase his silence about Louv

THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, June 23, 1915. Volume XLI. No. 1068.

No. 140.

(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 23, 1915. *TOTHILL STREET, WESTMINSTER.* VOLUME 41. No. 1068.

EDITORIAL.

IT would hardly be possible to exaggerate the importance of the series of articles on "The Reconstruction of Belgium," of which the second instalment appears in the present issue, the first having been published last week. As we have previously stated, these articles are specially contributed by two Belgian gentlemen of high standing and exceptional experience in the building industry of Belgium, and the fulness of their knowledge becomes increasingly evident as the articles proceed. They write, moreover, with a strong sense of the gravity of the issues that are at stake, and we would particularly commend to the notice of traders the earnest and weighty warning that, although the Belgian people are now fully determined to break off all business relations with Germany, that is a matter that will be ultimately determined not by patriotic sentiment but by purely business considerations, the vital question being whether our traders are able to compete successfully against the Germans.

* * * *

In order to beat the German trader in the Belgian market, it is obvious that the British trader must become thoroughly conversant with the conditions of success, and these are very ably summarised by our Belgian contributors, who show very plainly the methods that have enabled the Germans to capture Belgian trade. These may be stated briefly as—cheapness, easy terms of payment, and assiduous attention to the customer's requirements; this last expression implying extraordinary promptness of delivery, and an extreme readiness and adaptability of service, so that the customer can always be sure of getting, at short notice, exactly what he wants. Such suppleness is not invariably characteristic of the British trader. An instance of this difference that has been recently recorded will serve for illustration. An English expert designs a certain detail, and tries hard to get it made in England. Manufacturer A says he has something better in stock, and therefore refuses point-blank to work to the special design; B refuses to have anything to do with it, and, by his manner, rather conveys the impression that the request is insulting; C says he will make the article, provided the expert will give him an order for at least a thousand copies. At length, in disgust, the expert takes his order to Germany, where the manufacturers fall over each other in the effort to secure it.

* * * *

That, of course, was before the war, but, at any rate, it is a striking instance of the way in which British trade has been given away to Germany. Perhaps the British "spirit of independence" is not wholly to blame. There may be underlying causes,
such as the relative dearness of labour in
country. Nevertheless, the question of tempe
ment enters very largely into the matter, and
the immediate past the Germans have sc
against us very heavily by their greater readin
of accommodation. Is that flexibility beyond
powers? Not at all. It is a matter not so m
of character as of a habit that can be dropped
a moment's notice; and now is the accepted t
for getting rid of it. There should be no diffic
about being bland to Belgium; so here is a splen
opportunity of adding to the sterling honesty
which our traders are famous the world over
crowning grace of an accommodative dispositio
of a ready adaptation to circumstances.

* * * *

To the British rule of reluctance to meet
wishes or the whims of clients there are certa
many exceptions, as architects can testify, altho
their evidence might not be quite conclusive, beca
they have a peculiar knack of getting what t
want from traders and craftsmen. But the t
is ripe for a general revision of business organ
tion and trading methods, and to this end
articles on the reconstruction of Belgium are a m
valuable contribution. Belgium, it would seem
to be again the initial battle-ground on which Bri
and German will meet in the crucial stages of
great commercial war that will mean woe to
vanquished. If we win it in Belgium, we may l
forward with the utmost confidence to a resump
of our old commercial supremacy everywhere.
we allow the Germans to regain their old comm
cial footing there, their recovery of the trac
prosperity which is at the roots of political po
will strengthen the enemy for further ambitious es
towards world-domination. As the defeat of
object is not merely a patriotic duty, but an obl
tion of humanity, we congratulate the buil
industries on their position in the van of the m
ment, and we are glad to be the medium of plac
at their disposal the valuable fund of informa
contained in the articles on the reconstructio
Belgium. They should be able to turn it to excel
practical account.

* * * *

Glasgow is in the throes of a controversy as to
is to be done to the Tolbooth Steeple. This histo
landmark having fallen into disrepair, the corpora
master of works (Mr. Thomas Nisbet) and Mr.
Keppie, architect, were asked to prepare a report
the cost of retaining and strengthening the ste
and, alternatively, of taking it down and re-erectin
They find that repair would cost £2,500, and rem
and re-erection £3,330, and the corporation
decided upon re-erection—not, we may be very

se this is the dearer process, but because it might turn out to be cheaper, seeing that in the r case the necessary underpinning would involve emporary disuse of one of the tramway lines, this interference, lasting over several months, possibly involve a loss that might ultimately the renovation dearer than the removal. There en, almost in the natural course of events, a good of newspaper correspondence on this decision, s usual in such cases, opposition preponderates, being normally passive and silent. As a matter itiment and propriety, we should be inclined vour the opposition. To move Temple Bar Iertfordshire or Crosby Hall to Chelsea, or ll's house to some as yet undetermined site, or çade of Manchester Old Town Hall to Heaton or the Tolbooth Steeple to Gallowgate, is in each nerely to adopt a desperate remedy that is not degrees better than dissolution. A transplanted ng, torn away from the environment that has iced it or that it has influenced, and in the process ed of much of its historical investiture, looks as unhappy as a tree-trunk in a timber-yard.

* * * *

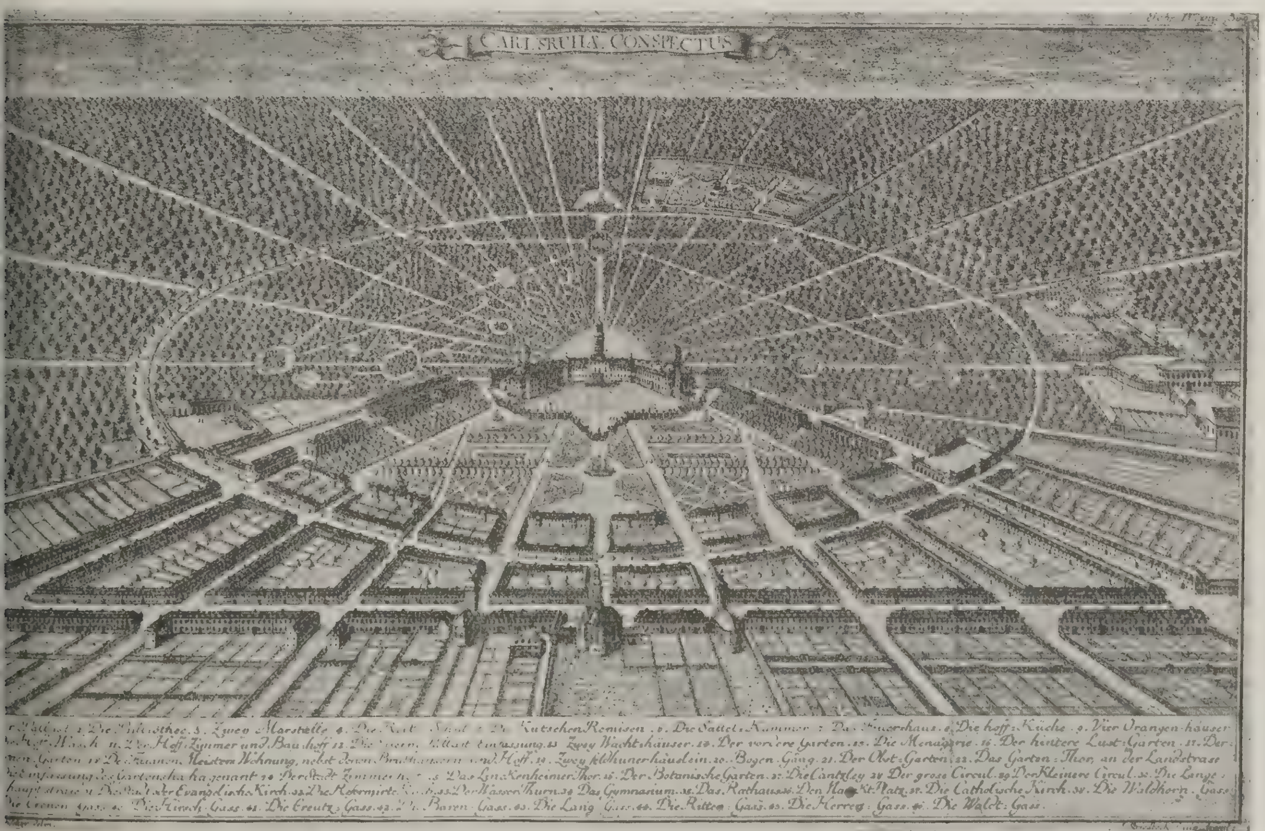
to the air-raid on Karlsruhe on June 15, no e details of the damage done are at present ble. All that is known at the time of writing is ombs were dropped quite close to the Grand Palace, that many projectiles also fell in the n and southern quarters of the city, and that the st havoc of all was wrought near the Hotel nia, in the Rondel Platz, and in the Karl Friedasse. Although, unlike the Germans, we do not over such occurrences, we remember the al lunacy of the murderous Zeppelin raids, and certainly waste no sympathy on the panicn inhabitants of Karlsruhe.

* * * *

lsruhe owes what it can be said to possess of eur to jealousy of the splendours of Versailles. s William, Margrave of the Grand Duchy of , who began to rule in 1709, founded two hunears ago, exactly to the month—in June, 1715—a new castle at Karlsruhe, and, as Mr. Raymond Unwin has remarked, laid out the plan of a new city with his castle designed to be not only the centre of its life, but actually the physical centre of its plan, as shown in the reproduction below. The ground was disposed on the basis of a circle having a radius of 425 metres, On the centre point the founder built a tower, and on the south side of this, connected to it by means of a wing running north and south in order to get sufficient length facing south, he built his castle, two wings of which, stretching out to the south-east and the south-west, completed the façade and set the line for the fan-shaped *place* which was laid out in front of the schloss. From these wings, stretching out to the south-east and south-west, were planned radial streets, with seven radial streets in between them, and on the west side one or two others carrying the fan-shape of the town farther in this direction. Around the circumference of the fan-shaped schlossplatz, within the line struck by the 425-metre radius, were laid out building blocks occupied by the chief ministries and residencies, facing on to an inner circular road forming the *place*, which, originally used as a parade-ground, has since been planted with formal beds and grass-plots, which, as Mr. Unwin said (and that was before the war) are "variegated and fussy in character."

* * * *

St. George's Hospital gets a new lease of life because of the war. A Bill that received the Royal assent last July empowered the governors to sell the site, and to combine the hospital with that of Westminster in a new building for which a new site was to be found. But to be empowered to sell and to be able to sell—or, rather, to effect a sale—are such very different matters that, though the splendid site at Hyde Park Corner had been on offer for several years before the war, the price required could not be obtained; and the war has so strongly emphasised the difficulty that the hospital authorities despair of maturing their scheme. "It is now obvious," they report, "that many years must elapse before there can even be a hope of obtaining an adequate price." They are therefore considering ways and means of "bringing the hospital up to date on the present site."



KARLSRUHE AS ORIGINALLY PLANNED.

THE RECONSTRUCTION OF BELGIUM—II.

[*SPECIALLY CONTRIBUTED.*]

Finance (concluded).

IN many instances large fortunes have been made by Belgian contractors who began their careers on the credit obtained for them by their reputation for skill and honesty. Sterling honesty and tireless industry are, indeed, the dominating characteristics of the Belgian nation, as was truly affirmed the other day in an article in "L'Independance Belge" by Canon Noël, professor in the University of Louvain. "There is not in the world," he declares, "any country to equal ours in the matter of work. The Belgian lives for work, and he works with an energy that yields to no discouragement and with a patience that is proof against all fatigue."

The Belgians have a splendid history. The country has emerged triumphantly through many vicissitudes, and never, in any circumstances, has the courage of the Belgians forsaken them; always they have risen superior to the most terrible misfortunes. It is a racial quality of the Belgians to triumph over calamity, and, in accordance with its history and the genius of its people, it will again, phœnix-like, achieve a glorious resurrection from its ashes.

Commercial confidence and credit run but little risk when they are accorded to a people having such a brilliant past, and who, under the most crucial test, have proved to the world the value they attach to their plighted word. A nation that has thus valiantly and unhesitatingly made such tremendous sacrifices to honour its own signature, a nation of such indomitable spirit, splendid courage, and tireless energy, has afforded the most convincing proofs of a magnificent endowment of that good faith which is the firm basis of commerce and industry.

Englishmen will approve this attitude. Their history is full of shining examples of resolute perseverance, of unconquerable courage, and of scrupulous loyalty to engagements in the face of the greatest difficulties.

England again manifested those characteristics last August, when, on the news of the violation by Germany of the neutrality of Belgium and the heroic resistance offered by the Belgian nation to that great wrong, she unanimously mobilised the forces of her empire in defence of the guarantee she had given that the neutrality of Belgium must be respected.

In addition to these considerations, which are in the nature of moral guarantees for the fulfilment of obligations, applicable alike to matters of policy and to matters of business, there exist in Belgian law two provisions created in favour of the constructional trades which constitute effective collateral guarantees.

First, according to Belgian law, a contractor may, by carrying out certain simple formalities, obtain a lien or preference upon the selling price of the property upon which he has spent work and materials which may be made to serve as a guarantee to those who supply him with goods.

Secondly, when carrying out works for the State the contractor, as also his sub-contractors and the merchants who furnish the goods for such works, enjoy the right to preferential payment, because the sums due to him by the State must be exclusively reserved and earmarked for the payment of those works and supplies, and may not be attached by creditors of the contractor to whom he may owe money for other works nor for any other reason.

It follows necessarily that Englisn merchants, by reason of the general principles and terms of Belgian law, may enjoy the protection afforded by the foregoing provisions when supplying goods on credit to Belg contractors, as to which the writers propose to e into further particulars in due course.

II.—*Machinery and Equipment.*

Having carefully studied the financial conditi that govern an undertaking, the contractor tu his attention with equal earnestness to the imp tant question of machinery and equipment. A g soldier badly armed is useless in battle. Similar a good workman with bad tools, and an excell contractor supplied with poor equipment, will bad work.

Good and sound machinery and equipment w formerly supplied to Belgium by the United Ki dom, France, America, Holland, and, of course, Belgian merchants, until the Germans came u the scene with their customary seductive method low price, prompt delivery, easy terms of paymen

Let us examine these three factors in some det with the object of affording British merchants a manufacturers a clear view of the position.

The Germans have examined, taken to piec analysed, and thoroughly studied the machin supplied by their predecessors. They have measu and weighed the constructive elements, obser the workmanship, established the cost, and cal lated the profit. Then, betaking themselves to workshop, they have designed machines of sligh build, they have reduced the weight of the constr tive elements, they have substituted cast-iron steel, antimony for bronze, and have augmen the speed of the machine in order to get the requi power. In this way they have succeeded in und selling their foreign competitors by filling markets with trashy machinery, of which the but apparently irresistible recommendation is cheapness.

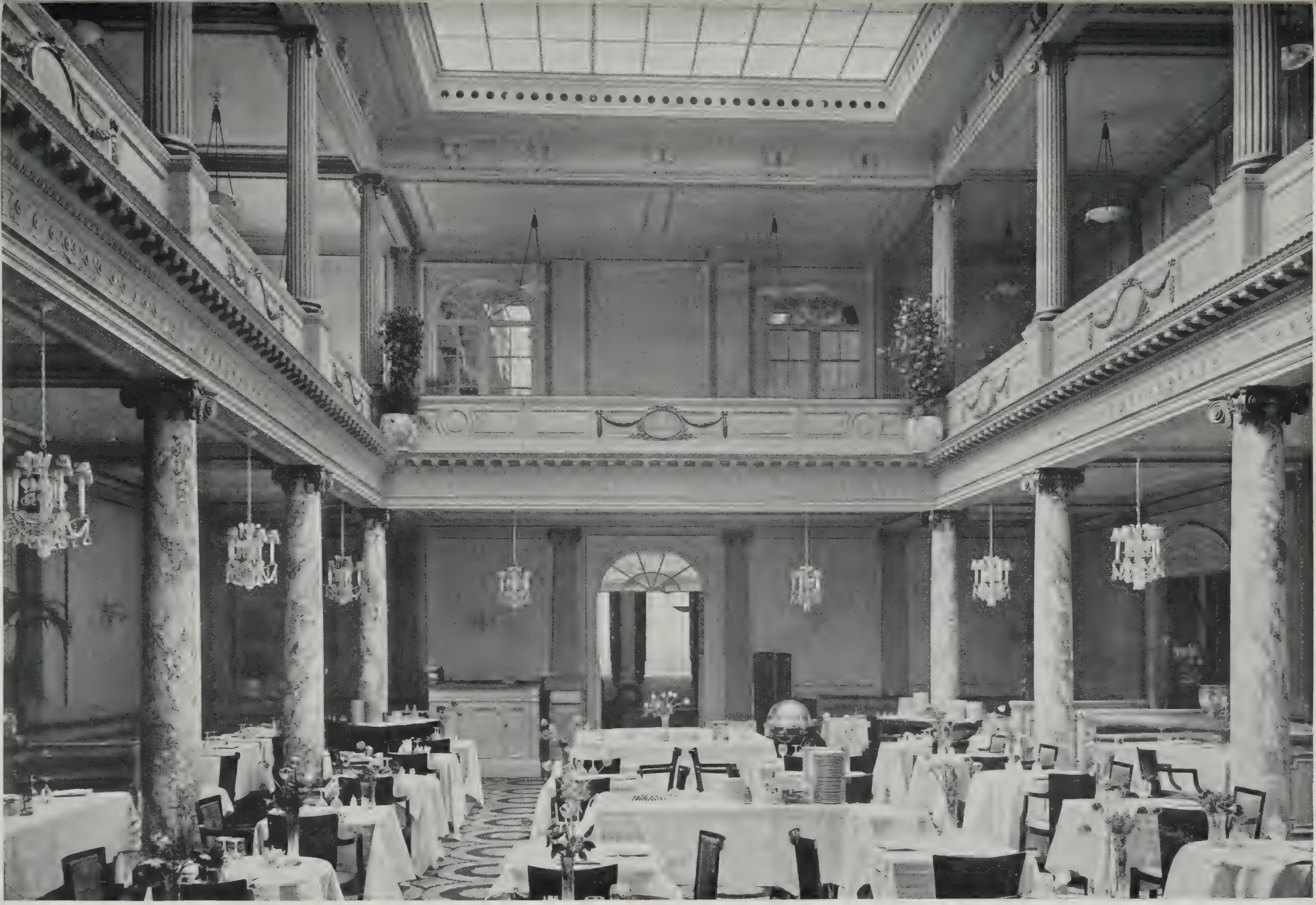
Besides low prices and prompt delivery, the Germ offered their clients the seductive inducement easy payments. Their customary conditions are follows: (A) Payment in four instalments—the fi of one quarter the amount, on delivery, the ot three-quarters at three, six, and nine months. Monthly payments representing 10 or 15 per c of the total value. In each of these cases, i stipulated that the goods do not become the perty of the purchaser until payment is complete

Although these modes of payment may appea be somewhat hazardous to the vendors, it is ne theless true that the German merchants have but little reason to complain on this account. course, there are occasional bad debts; but system of easy payments has brought the Germ so much business that the slight losses incu have been quite negligible.

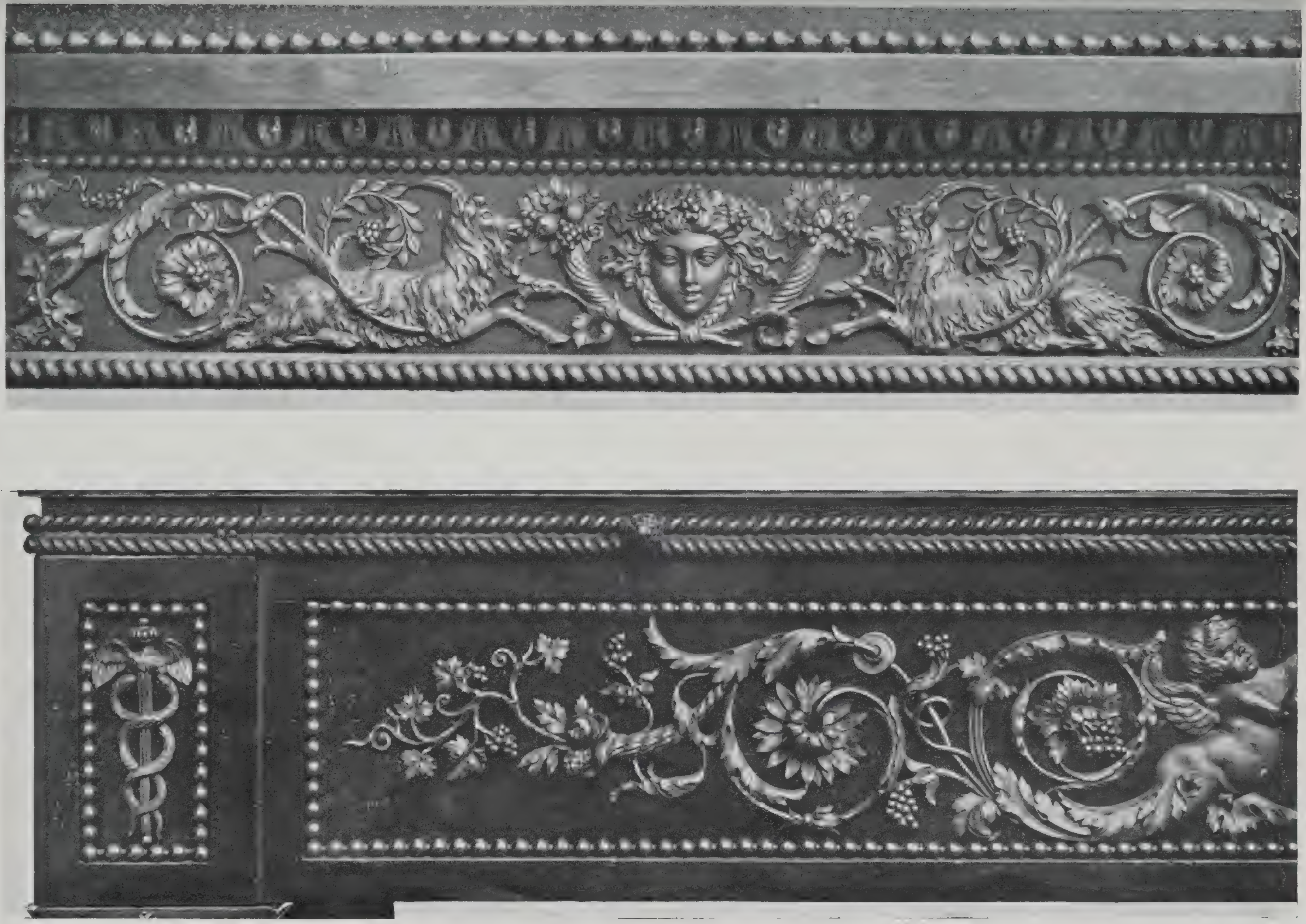
The Belgian law allows the vendors of mach to establish, almost without expense, a secu against the purchasers upon credit and their o creditors. The vendors of machines are allo to inscribe their bills in a special register kept by Tribunal de Commerce of the domicile of the tractor, and thus to secure, during a period of years from the delivery of the machine, a lien u its price.

Independently of this advantage, more se tive than real, because such machines require m outlay for upkeep and need renewal more frequen the Germans have a considerable real advant namely, that of ability to give quick delivery, e cially of contractors' plant.

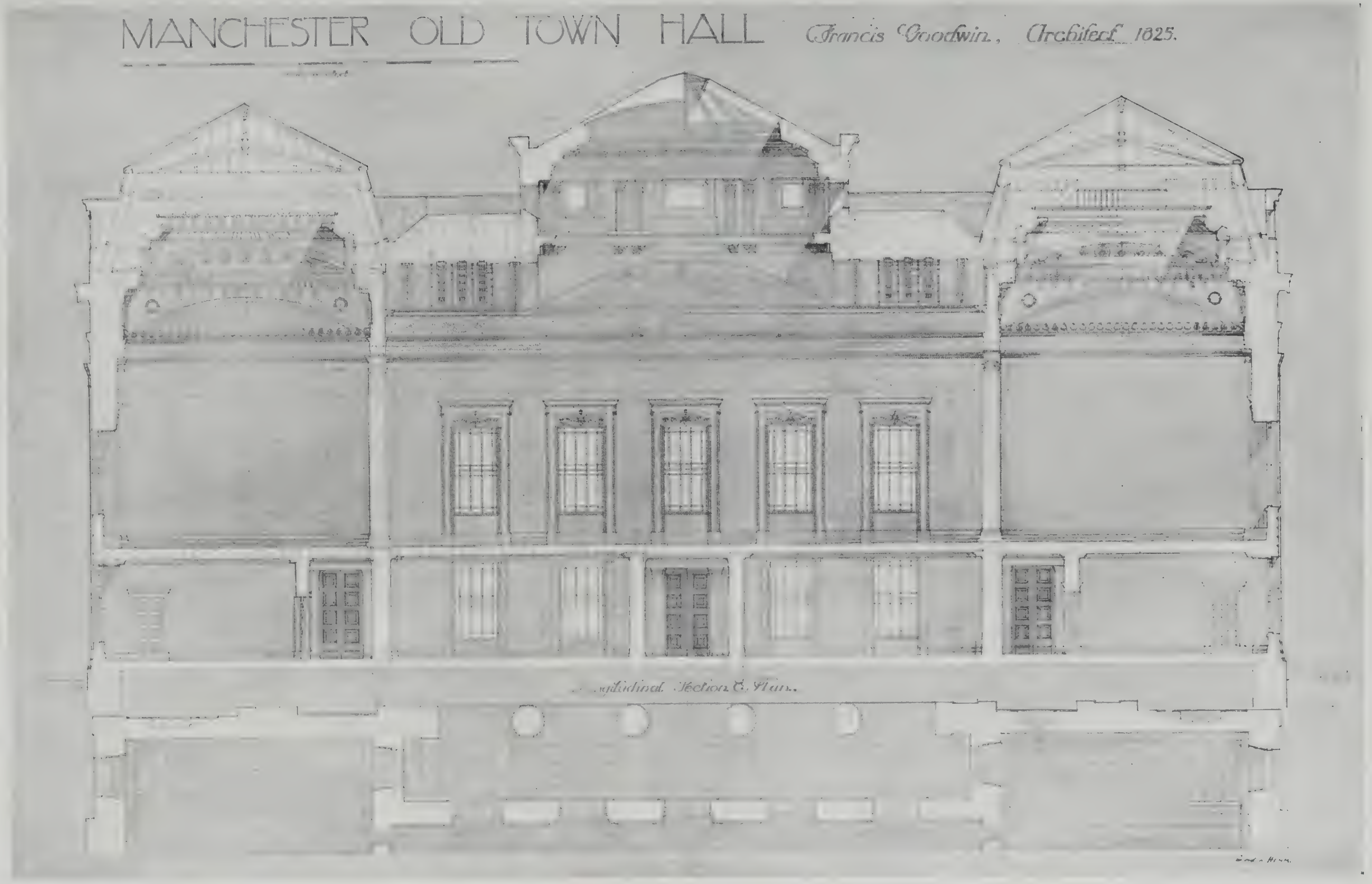
to “The Architects’ and Builders’ Journal,” Wednesday, June 23, 1915.



CURRENT ARCHITECTURE (SERIES II.) XXVII.—CIRO’S CLUB, ORANGE STREET, LONDON, W.C.: THE DINING HALL.
HAROLD COSLETT, F.R.I.B.A., ARCHITECT.



DETAILS OF CRAFTSMANSHIP. XXIII.—METAL ENRICHMENTS TO EIGHTEENTH-CENTURY FRENCH TABLE IN THE WALLACE COLLECTION.


MANCHESTER OLD TOWN HALL
Francis Goodwin, Architect 1825.
Longitudinal Section & Plan.

MANCHESTER OLD TOWN HALL. III.—LONGITUDINAL SECTION AND PLAN.
MEASURED AND DRAWN BY GORDON HEMM.

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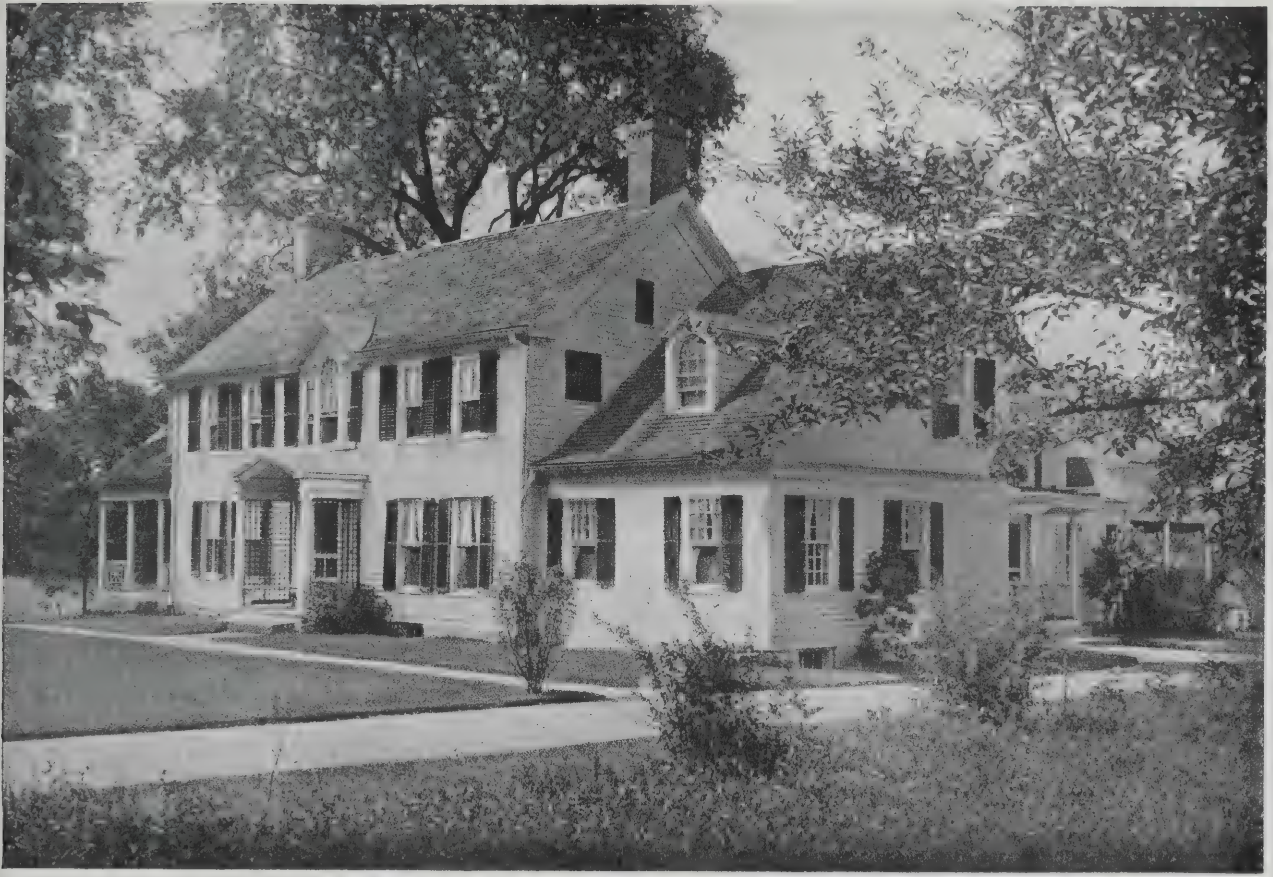
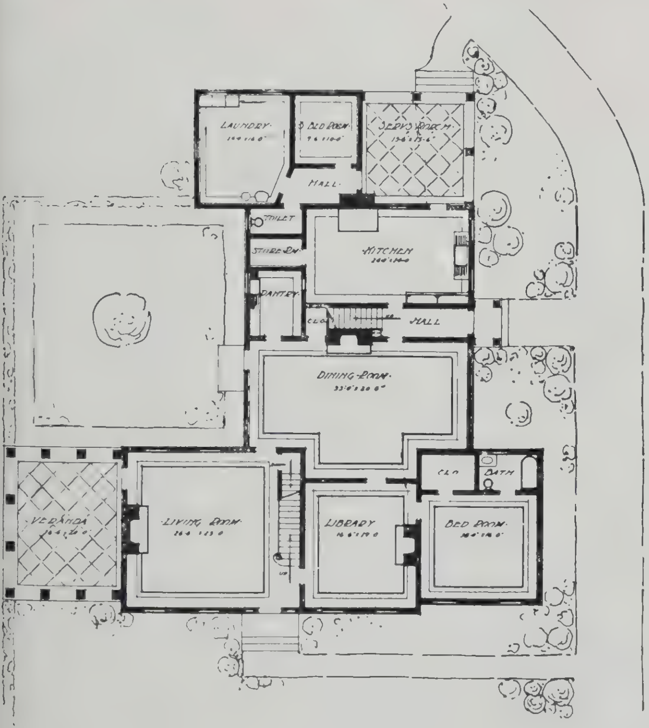
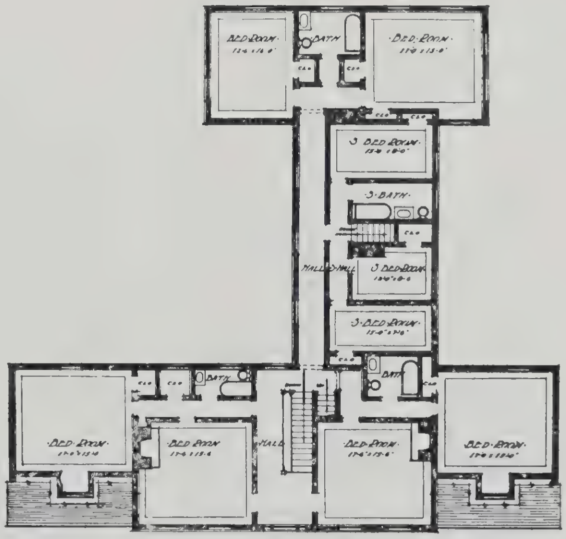
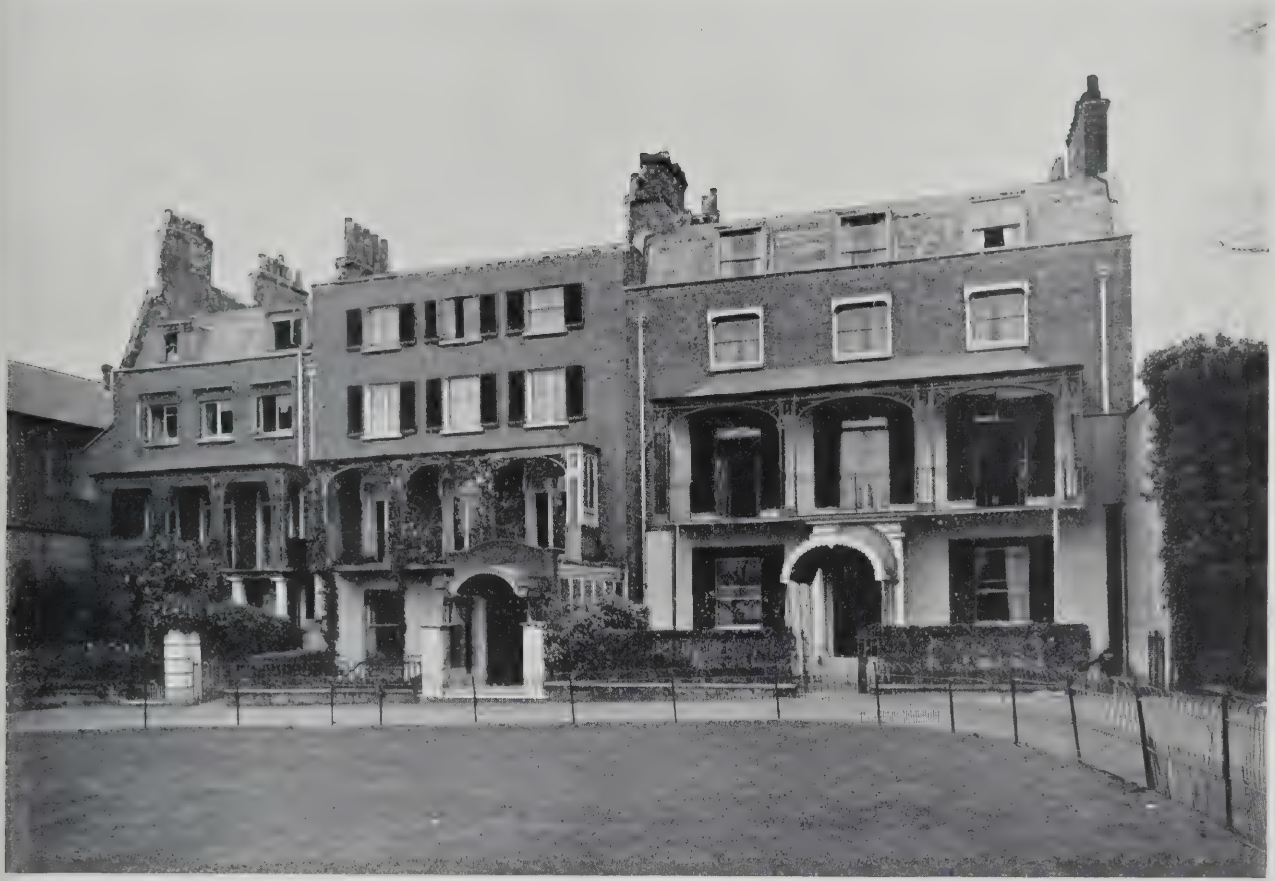




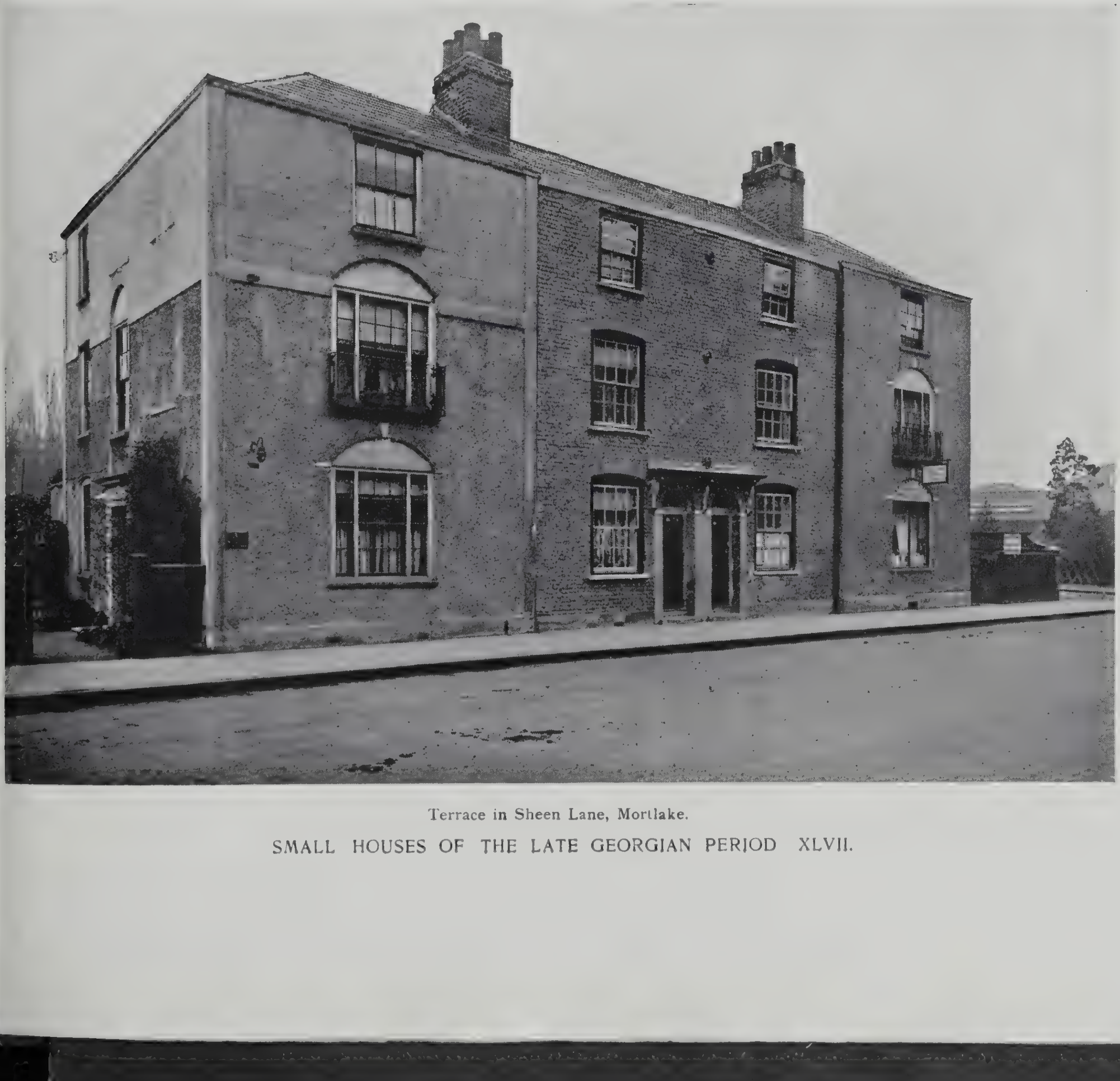


MODERN AMERICAN ARCHITECTURE. XVII.—HOUSE AT SHARON, CONNECTICUT.

MANN AND MACNEILLE, ARCHITECTS.

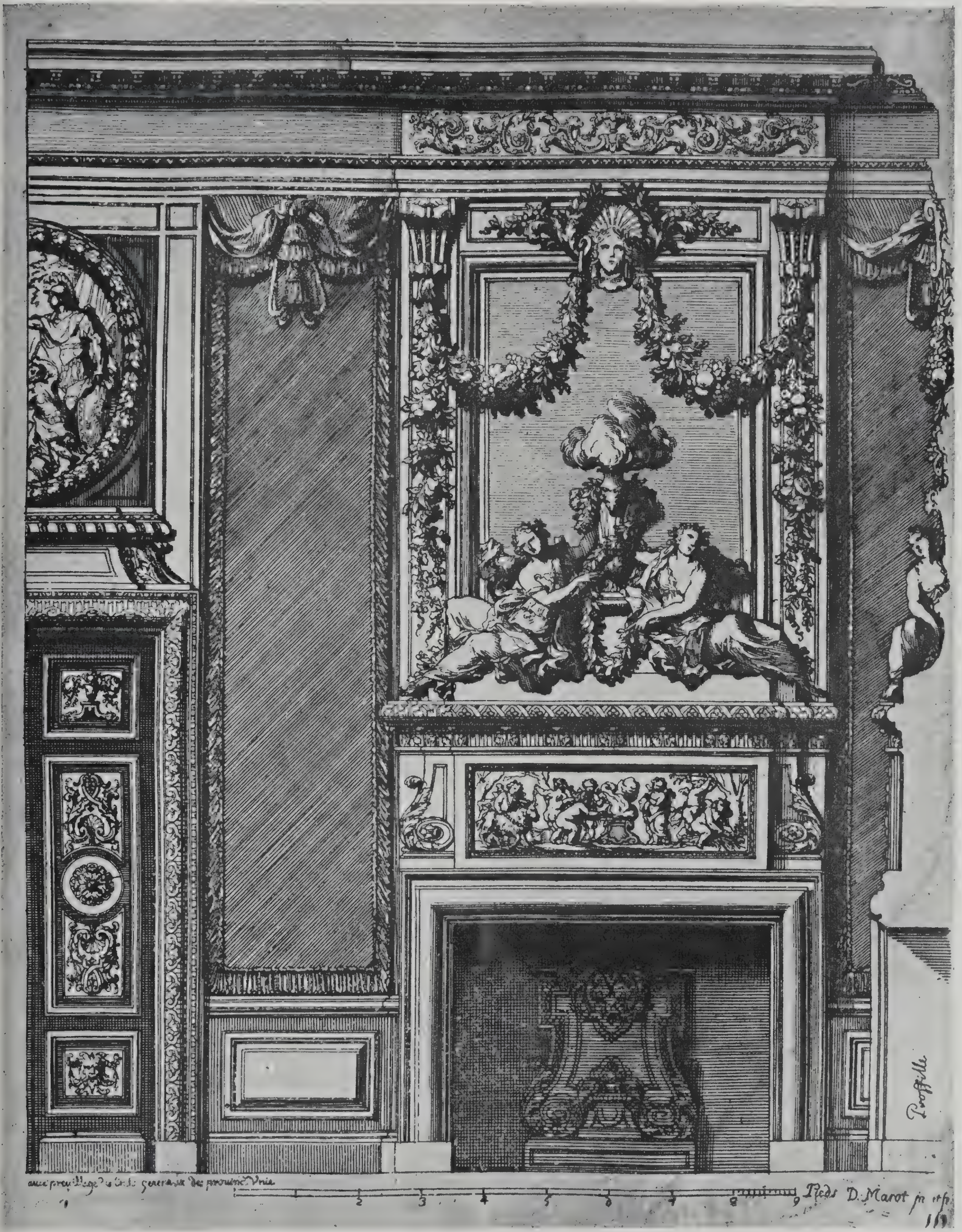


Terrace on Richmond Hill.



Terrace in Sheen Lane, Mortlake.

SMALL HOUSES OF THE LATE GEORGIAN PERIOD XLVII.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DESIGNS BY DANIEL MAROT. XI.—A CHIMNEYPIECE.

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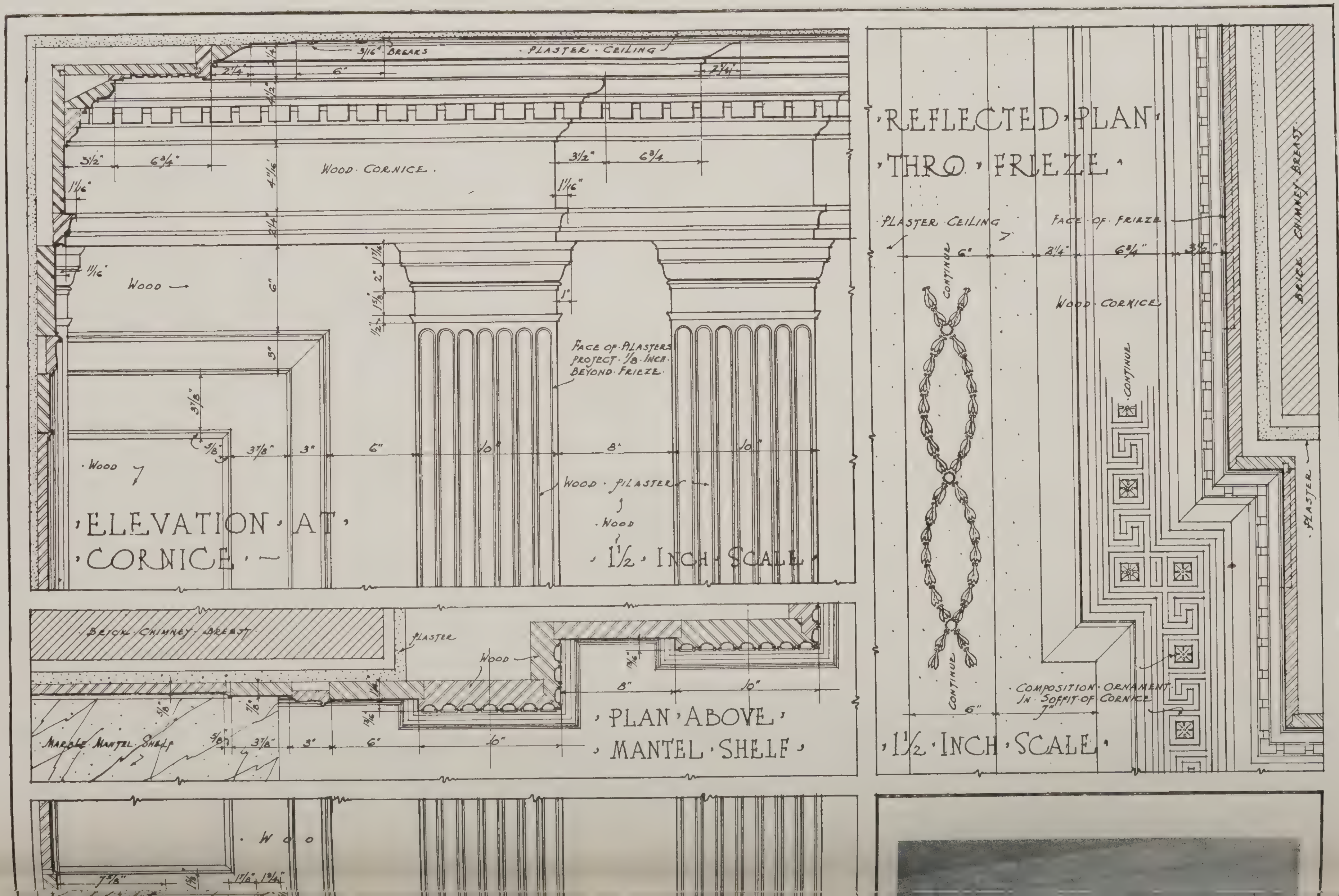
ELEVATION AT
CORNICE
1½ INCH SCALE
3/16" BREAKS
PLASTER CEILING
WOOD CORNICE
WOOD
FACE OF PILASTERS PROJECT 1/8 INCH BEYOND FRIEZE
WOOD PILASTER
WOOD
WOOD
REFLECTED PLAN
THRO FRIEZE
PLASTER CEILING
FACE OF FRIEZE
WOOD CORNICE
BRICK CHIMNEY BREAST
PLASTER
CONTINUE
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CONTINUE
COMPOSITION ORNAMENT IN SOFFIT OF CORNICE
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PLAN ABOVE
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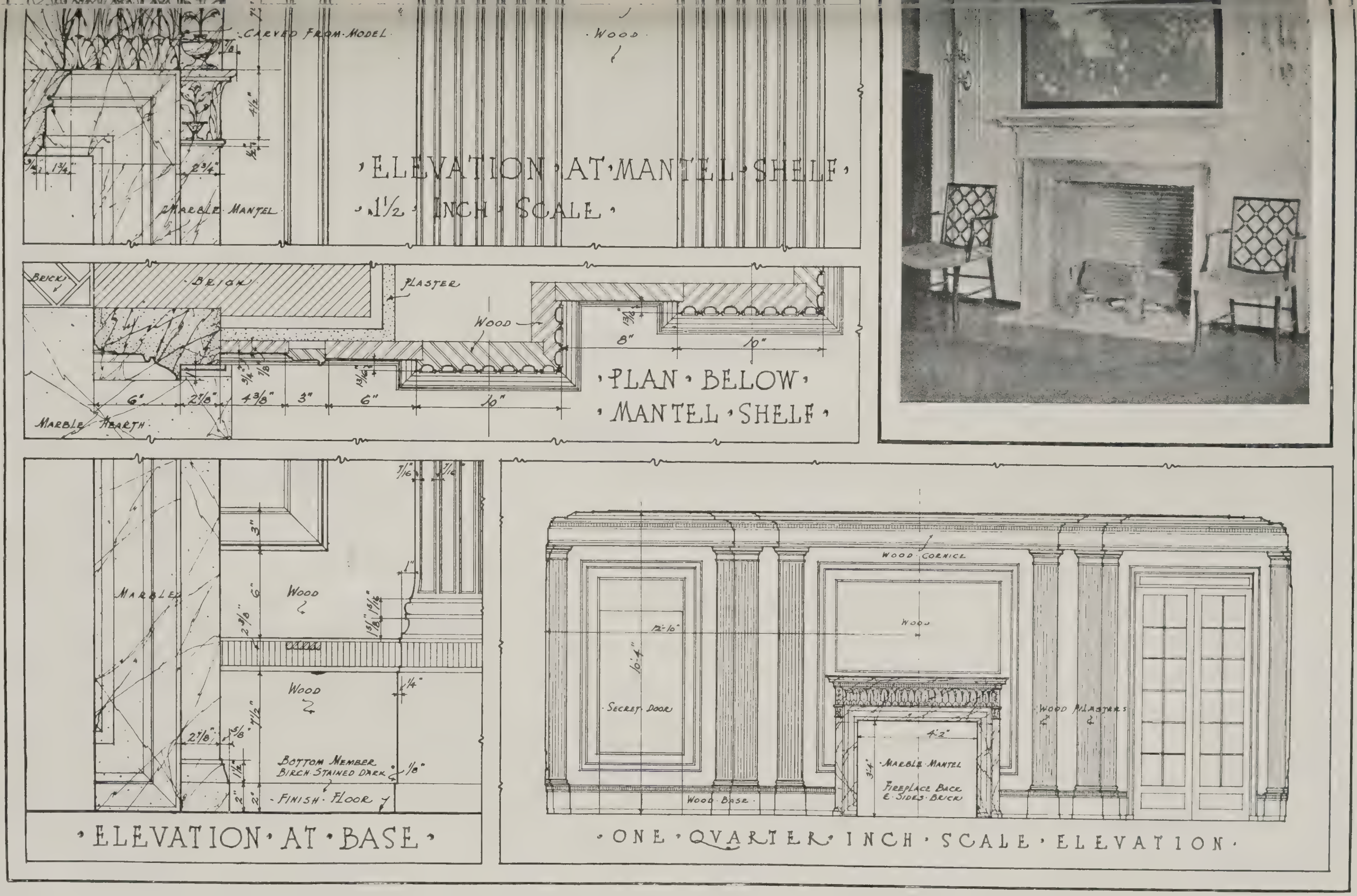

WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (SERIES II.). VII.—DINING-ROOM CHIMNEYPIECE IN AN AMERICAN HOUSE. H. T. LINDEBERG, ARCHITECT.

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anks to the cheapness of their products, in large manufacturers have attracted to them- s a clientèle which has enabled them to alise in the manufacture of certain lines of s, and has conferred upon them in consequence tain monopoly. In fact, it is these large manu- rers who furnish to Belgian contractors almost hole of their plant.

lgium has afforded them so regular an outlet eir products that they have been able to hold s thereof which enabled them to satisfy nds, if not immediately, at least after but a delay.

is ability to supply quickly has conferred on the an manufacturers a considerable advantage, use extremely urgent needs for contractors' often reveal themselves suddenly, for example, g the progress of works which require to be leted within a restricted time under pain of a y fine, an accident may happen to some of the in use thereon; or, for some reason, the speedy letion of the work becomes of unexpected cy, and requires the installation of supple- ary plant; or. a risk which has to be borne by ontractor declares itself during the progress of works (inflow of water, landslide, etc.), and be dealt with immediately by means of suitable ; or, an event having the character of "force ure," such as an inundation caused by an ex- onally high tide breaking through the dykes, nds imperiously immediate remedial repair and val of the flood water and consequently special ional plant will be needed.

e Germans, having such already in stock, were in to secure such orders, and probably in such they profited by the occasion to obtain higher s and larger profits.

t the English manufacturers adopt the German ods of manufacture, let them copy their custom gard to terms of payment, let them remember avail themselves of the legal lien on the goods the Belgian laws provide for their security, and re convinced that commercially and industrially king they will be able to produce better plant s cheap as, if not cheaper than do the Germans.

say "commercially and industrially speak- because this is the only aspect which should nsidered. In effect, every contractor. as also manufacturer or merchant, seeks above all heapest goods; he will be always inclined to find ntages in such, while in those of higher prices ill seek for and magnify disadvantages. His nterest impels him to act thus.

t it not be forgotten that the principle which rns contracts in Belgium is that of competitive ring. Nearly always the lowest tender res the work. It necessarily follows that the of materials and plant is a dominating factor e contractor's success, and that the cost of the s to be supplied by British firms must not ed the standard set by the German firms. ss British firms are prepared to compete with Germans, then, in spite of all the sufferings red, all the miseries caused, all the commercial industrial ruin, and all the moral indignities ght upon Belgium by the armies of the Kaiser, an traders will again be preferred. At present elgians are firmly resolved to break off all com- ial relations with the Germans. The execution at decision commends itself as a means of pre- ng Germany from recovering her power. But decision will rapidly give way unless interest profit sustain it.

itish traders must therefore give due weight to omic considerations, and take into due account orce of habit. In order to secure Belgian trade, must adopt and improve upon the methods of business rivals. Desperate efforts will be made by the Germans to recover their Belgian trade; and they are taking full advantage of their military occupation of the country to work vigorously towards this end.

A word to the wise is sufficient. British traders must brace themselves for a fierce industrial and commercial war, and to win in that war they must adapt themselves to new conditions that may be widely different from those to which they have become accustomed. As King George has said, England must wake up.

Completing the study of the question of machinery and equipment, it is necessary to glance at some of the various methods of hire and purchase. There is hire pure and simple at a rent determined in accordance with the period of hiring; or hire at a rental depending on the quantity of the supply; or, again, depending on whether or not personal assistance is included in the terms; and there is also the system of hire with option of purchase, etc.

In Belgium the letting of plant and machinery does not involve any special risks beyond those ordinarily common to the letting of movable property. The sole precautions to take are: (a) Arrange so that the goods let bear distinctive indications which will prevent their being confused with the goods of the contractor-tenant; (b) notify as soon as the goods let are delivered to the works of the contractor that those goods are let and remain the property of the person who has let them; this last precaution is useful in the case where the goods are to be used in the workshops proper of the contractor who is merely the tenant thereof; this formality prevents the landlord of the property from enforcing his right of general lien on everything contained therein and consequently upon the goods which do not belong to the contractor.

(To be continued.)

THE PLATES.

Ciro's Club, London.

THIS new club, a development from the well-known establishment at Monte Carlo, occupies a site in Orange Street, at the rear of the National Gallery. The dining hall is the chief apartment. It is an exceedingly pleasant room, embodying a scheme of French decoration. The walls are finished with plaster, of grey-green tone. Mr. Harold Goslett, F.R.I.B.A., was the architect.

Metal Enrichments to French Table.

On French furniture of the eighteenth century applied metalwork was used extensively. It is characterised by grace in design and excellence in workmanship. The detail shown is very typical.

Manchester Old Town Hall.

The plate of the longitudinal section is self-explanatory.

House at Sharon.

This is a good example of the application of Colonial architecture to modern work. The plan is interesting.

Terraces at Richmond and Mortlake.

The terrace shown by the upper illustration on the plate has suffered by modern additions, in the form of porches, but the main scheme fortunately has not been affected. The lower illustration shows a more modest group of four houses, plain, but still preserving character.

Chimneypiece by Marot.

This is a very typical example of Marot's manner in interior decoration—a rich manner, but not a florid one.

Chimneypiece in an American House.

In this design the prevailing character is one of delicacy and grace—rare qualities in modern work.

LEGAL.

Liverpool Builders and By-laws of Corporation.

Alexander v. Allen Tracey and Son.

June 16. King's Bench Division. Before the Lord Chief Justice and Justices Ridley and Scrutton.

This was an appeal by Mr. Alexander, a building inspector of the Liverpool Corporation, the respondents being building contractors of Liverpool.

Mr. Macmorran, K.C., and Mr. A. H. Maxwell appeared for the appellant, and the respondents appeared in person.

Mr. Macmorran said the respondents acquired an old house at 102, Huskisson Street, Liverpool, which was built in 1840, before there were any by-laws in force in Liverpool. They converted the house into flats. The house could not be erected to-day in the way it was originally erected, because it did not comply with the by-laws as to air space at the rear, for the space was insufficient. Under a local statute the conversion of a single dwelling-house into more than one dwelling amounted in law to the erection of a new building, and the new building in question did not comply with the by-laws. Notice was given to Messrs. Tracey under the statute to remedy the defect complained of. They did not do it, probably they could not, and they were summoned for not complying with the notice. The stipendiary magistrate dismissed the information on grounds arising on the construction of a section. The air space for the old house extended from the ground upwards, and if it was insufficient for the old house, clearly it was very insufficient for the new flats, each of which must be regarded as a new and separate dwelling-house. There must, said counsel, be a clear air space at the rear of each flat co-extensive with its height.

The Lord Chief Justice asked, if the Corporation objected to the alterations, why they allowed the respondents to complete them.

Mr. Macmorran said that they were not quite certain whether the flats were intended for dwelling-houses or offices, and if it had been for the latter the section would not have applied. The respondents raised, among other questions, the suggestion that a flat was not a dwelling-house, but the magistrate decided against such a contention. Counsel admitted that if a person altered an old house into three flats he was entitled to have one of the flats regarded as coming within the category of an old dwelling.

Mr. Tracey said builders in Liverpool regarded the by-laws as being far from clear where flats were concerned. His first point was that the by-laws had no reference to flats and super-improved houses, and to apply them to flats they had to be unfairly stretched. A flat, although it might be a dwelling, was not a dwelling-house when it was one of a number of dwellings comprised in one house. It was merely part of a dwelling-house. He could prove that they had more air space than was demanded by the Act. For instance, the whole side of the house was on an open space. They made no alteration to the ground floor, so that must still be the old house. Mr. Tracey added, knowing the requirements of the by-laws were that sufficient air space should be at the rear of the house, and that the old house as it stood did not meet those requirements, they put the front door at the side of the house, thus making the other side the rear. By that means they obtained sufficient air space at the rear.

The Lord Chief Justice said the real question was whether the magistrate was wrong in his conclusion that the Corporation had not fulfilled a condition precedent to bringing this prosecution. There seemed no doubt that if a part of a building was converted so that it could be used for human habitation it could be termed a dwelling-house, and therefore flats could be treated as dwelling-houses. Assuming that the plans had been passed by the Corporation, it would have become the duty of the Corporation to determine which of the flats was the old dwelling-house. But the Corporation did not approve the plans; rather they disapproved them; and in spite of that the respondents took the risk of proceeding with the work. The question raised before the magistrate was whether the Corporation should have issued the summons before they determined which of the flats was the old building, and the magistrate held that they should have determined that matter first, and upheld the contention of the respondents that the proceedings failed. His lordship came to the decision that the magistrate was wrong. That was the sole question before the Court, and if the other question had been raised he would have required to have more facts before him before he dealt with them. He thought that the case should go back to the magistrate with directions to deal with the summons afresh.

Justices Ridley and Scrutton agreed.

Appeal allowed with costs. Their lordships complimented Mr. Tracey and his son on the manner in which they had put the case before the Court.

NEWS ITEMS.

New Church Hall for Glasgow.

A new church hall and offices are to be erected in Morrison Street, Glasgow, for the Glasgow United Free Church Presbytery. Messrs. Miller and Black, Glasgow, are the architects.

New Picture-house for Glasgow.

A new picture-house is to be erected at 160, Battlefield Road, Glasgow, for James H. Milligan, Esq. The architect is Mr. A. V. Gardiner, of Glasgow.

Architects and War Service.

Mr. Edward Roughley, Architect, 7, Hardshaw Street, St. Helens, Lancs., announces that as he has joined H.M. Forces and closed his office, he would like it to be known that Mr. Reginald Wainwright, Licentiate R.I.B.A., of George Street, St. Helens, is conducting the business until Mr. Roughley returns.

Whittingham Asylum Extension.

A new annexe, recently completed, to Whittingham Asylum, near Preston, has cost about £150,000. Wards on the west side are allotted to male patients, those on the east to females, with the administration block between. Messrs. Sykes and Evans, of Manchester, are the architects.

Leicester Sanatorium.

The newly erected sanatorium for consumptives at the Gilroes, Leicester, comprises two blocks, the tuberculosis hospital for acute or bedridden cases, and sanatorium for cases less acute. The whole are built of red pressed brick, with slated roofs, and form a long range of single-storey buildings, about 600 ft. from east to west. The sanatorium is nearly 400 ft. long. The dining-hall is 36 ft. by 24 ft. Each of the wings stretching from the centre comprises ten bedrooms for twenty patients, with duty room. The total accommodation in this block is for forty patients in the buildings and eight in the shelters at the rear. The vera floors are of granolithic concrete. tuberculosis hospital consists of two wards 50 ft. long by 20 ft. wide, provi for twenty-four patients. The arch was Mr. A. H. Hind, F.R.I.B.A., and contractor, Mr. F. J. Bradford.

Waterproofing in Hospitals.

The architects engaged on the r work on the boys' bath at "Cheetham Hospital, Manchester, experimented fore waterproofing it. They report the results of the experiments and of work on the bath were successful. W now informed that they are adopting same waterproofer, "Pudlo," for wor connection with the Stockport Infirma

L.G.B. and Housing in Ireland.

At a recent meeting of the Dunshaugh R.D. Council, a circular letter was from the Local Government Board, d May 31, stating that it had been dec that during the continuance of the further advances by the Land Commis for purposes of Labourers' Acts mus strictly confined to what is necessary completing cottages in course of cons tion, or for which contractors' bonds been perfected, and for the erectio cottages where it can be shown that are absolutely required.

Wrexham Housing.

In the House of Commons, rece Mr. Wardle asked the President of Local Government Board if he would what action the Board had taken, o tends to take, in connection with the lect of the Wrexham Town Counc carry out the recommendations of Board, based upon an inquiry held in to build at least thirty houses suitabl the working classes; whether he aware that in the report of the Wrex medical officer of health for 1914 it stated that at that time there was single house vacant at a week's rent 6s. or less; and whether, in view o scarcity of working-class accommod in Wrexham, pressure would be bro to bear on the local authority to take to meet the admitted need. Mr. Lon plied that the Local Government B had been in communication with the T Council of Wrexham with regard to provision of houses for the wor classes. The council had made app tion for sanction for the erection of t houses.

NOTES FROM CARDIFF.

Building in the Cardiff district is slack at present, nearly all the architects complaining of jobs being up owing to the war.

The Office of Works are advertisin tenders for the foundation of their Government Buildings in Cathays (on the adjoining site to the new Tech Institute). This has caused some sur in view of their refusing the local aut ties loans for their own undertakings

Work is progressing on the fire sta the Welsh Museum, and the Co-oper Society's premises, and building opera have started on the new Empire Th and the new medical school; Messr Turner and Sons being the contracto each case.

A tablet to the memory of the Captain Scott and his gallant compa who lost their lives in the South Expedition, is about to be placed i City Hall. Mr. W. Wagstaff is sculptor. The Terra Nova, it wi remembered, sailed from Cardiff.

P.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

REINFORCED CONCRETE AND THE LONDON BUILDING ACTS.

a paper read by Mr. Osborn C. Hills, F.R.I.B.A., before the Concrete Institute, of which some extracts were given in our issue of April 28, the author summarised the existing Acts and made detailed suggestions for their improvement, and in doing so he indicated the position which he submitted the Concrete Institution should adopt. It had already been recognised as an authority by the Legislature in the Amendment Act of 1909, and it would be ready to render able assistance, when a new Act or another Amendment Act was in contemplation. It will be noticed that the author adds to his summary a running commentary that contains suggestions of much practical interest and importance, and that he adds a citation from the New York regulations for testing.

The regulations of the London County Council with regard to reinforced concrete, he said, are divided into ten parts, as follows:

Part I (General) describes the meaning of the term "reinforced concrete," specifies the application of the regulations and the nature of the materials to be used generally in reinforced concrete buildings, prohibits the use of any reinforcing metal for conducting electrical currents, and provides that copies of the plans and calculations, together with particulars of the materials to be used, are to be deposited with the district surveyor at the time the notice is served upon him under Part XIII. of the 1894 Act.

Part II. consists of data to be used for the purposes of the Regulations. It contains a list of superimposed loads to be provided for on floors to be used for various purposes and roofs of different slopes. It requires provision to be made for wind pressure, and specifies the maximum allowable ratio of span to the depth of a beam or cantilever. It prescribes the bending moments to be allowed for in beams and slabs with various degrees of end fixing under different dispositions of loading. It specifies the maximum stresses to be allowed on concrete of various proportions, and in steel. It makes provision for anchoring the ends of tensile and shear reinforcement, and specifies the modular ratio to be assumed for beams and pillars.

Part III. (Beams and Slabs) contains regulations as to the minimum diameter and disposition of the steel reinforcement and the minimum thickness of slabs, and regulations as to notation and formulæ to be used in calculating the resistance moment in beams and slabs.

Part IV. relates to pillars and struts, and defines the terms "pillar" and "strut," and contains regulations as to the minimum and maximum diameter of reinforcing rods and their disposition and minimum area, regulations as to notation and formulæ and tables to be used in calculating the permissible load with various degrees of end fixing.

Part V. contains regulations as to walls, specifies the minimum thicknesses allowable, and the maximum area of openings permitted. It is to be noted that party walls and division walls are allowed to be constructed of reinforced concrete, and need not be of the thickness prescribed by the 1894 Act.

This is a variation from the provisions of the 1909 Act in the case of steel-framed buildings, which require all party walls to be of the thickness prescribed by the 1894 Act.

All brickwork, stonework, and plain concrete are required to be executed in Portland cement and mortar, and the allowable pressures on brickwork so built are specified. No regulations are given as to the allowable pressure on stonework built in cement mortar.

Part VI. contains regulations as to the allowable pressure on various beds of natural ground, and also limits the pressure on plain concrete in foundations. These are similar to the provisions of Sec. 22 (24) and (25) of the 1909 Act in the case of steel-framed buildings.

Part VII. (Protection) contains regulations as to the minimum cover of concrete over the metal reinforcement.

Part VIII. (Materials and Testing). This part contains regulations as to the quality, size, and proportions of the materials to be used for making concrete, with a table of the ultimate compressive stresses which must be attained for various proportions at the end of one month and four months after mixing. Regulations are also made as to the manner of mixing and placing the concrete. Nos. 165 to 167 give directions as to the quality and treatment of the metal reinforcement.

No. 168 is printed amongst the regulations as to "steel," though it would apparently come better under the next set of regulations headed "Tests and Testing," which specify the maximum test loads to be applied; such tests are not to be made within ninety days of the date of laying the concrete.

Part IX. contains regulations as to "Formwork or Centering."

Part X. relates principally to workmanship, providing that the work shall be carried on as continuously as possible, that it shall be protected from too rapid drying and from frost, and that concrete shall not be laid when the temperature is less than 7 deg. above freezing.

No. 185 is a most essential regulation prohibiting the cutting away of concrete for pipes or any other purpose in such a manner as would reduce the strength of any part of the structure below the standard set up by the Regulations.

The remaining three Regulations deal with woodwork, etc., fixed in or on the concrete.

There does not appear to be the same difficulty in determining whether the Regulations as to reinforced concrete will apply to a particular building as there is in determining whether a building is or is not a steel-framed building. Regulation 2 states that "These Regulations shall apply *only* to the construction of buildings of reinforced concrete in which the loads and stresses are transmitted through each storey to the foundations by a skeleton framework of reinforced concrete or partly by a skeleton framework of reinforced concrete and partly by a party wall or party walls."

Section 22 (29) of the 1909 Act provides that "It shall be lawful to make any addition to or alteration of or to do any other work to in or upon a building in accordance with the provisions of that section provided that the loads and stresses in the part of the building so added or altered, etc. . . . . are transmitted from the roof to the foundations by a skeleton framework of metal . . . . and the provisions of this section shall in all respects apply to such part of a building as if the same were a separate building."

There appears to be no similar provision in the Regulations, though from the wording of Clause 6 it appears to be contemplated that additions or alterations may be carried out under the Regulations. In my opinion it would have been well to have inserted a similar clause to Section 22 (29). It would also have been better to make the Regulations applicable in all cases where reinforced concrete is used. In the present circumstances there would appear to be no regulation as to reinforced concrete floors in ordinary or steel-frame buildings.

In the Regulations as originally drafted there was a provision similar to that in Section 22 (18) of the 1909 Act, viz.: "In every building of the warehouse class a notice shall be permanently exhibited in a conspicuous place on each storey of such building stating the maximum superimposed load per sq. ft. which may be carried on any part of the floor of such storey." This provision does not appear in the latest revision of the Regulations. In my opinion such a regulation is even more desirable in the case of reinforced concrete than in the case of steel framing, because in the former it is impossible to ascertain by inspection the strength of a floor.

No allowance is made for high-tension steel, so that apparently those systems which use mesh and other high-tension steel reinforcement would be inadmissible in buildings erected under these Regulations. In the R.I.B.A. Second Report such steel is recognised, with a provision that the stress on it shall not exceed one-half the stress at the yield-point of the steel, and a maximum of 20,000 lb. per sq. in.

It is also desirable to make a provision both under the Regulations as to reinforced concrete and in the Act as to steel-frame buildings that the drawings and calculations should be deposited with the district surveyor some time (at least one month) *before* the work is to be commenced. In the present circumstances, as notice is only necessary two days before the work is commenced, sufficient time is not given to the district surveyor to go through the scheme and check the loads which will come on the foundations before the foreman is clamouring at the door wanting the district surveyor to pass the bottoms for the stanchions and pillars.

The Regulations as to testing do not specify who is to require tests of the completed structure. Testing may be found necessary "by reason of any sign of weakness or faulty construction appearing." But the contractors' idea of "signs of faulty construction" may be very different from the district surveyor's. Who then is to decide? The New York Regulations provide that—

"The contractor may be required to make load tests on any portion of a reinforced concrete structure within a reasonable time after execution." It is also noticeable that the New York Regulations require the construction "to sustain safely a load of *twice* the superimposed load for which it was designed," whereas the London County Council Regulations limit the test load to 1½ times that load.

The London County Council Regulations as to protection are considerably less stringent than the New York Regulations. The latter require a minimum cover of 2 in. of concrete in columns and girders, 1½ in. in walls and beams, and 1 in. in floor slabs; the former only require 1½ in. in pillars, 1 in. in beams, and ½ in. in slabs.

The allowable stresses in concrete of 1:2:4 mixture under London County Council Regulations and New York Regulations are compared:

	L.C.C.	New York.
	Pounds per square in.	
Extreme fibre stress on concrete in compression ...	600	650
Concrete in direct compression	600	500
Shearing stress	60	40
Adhesion stress when bars hooked at ends	100	80
Adhesion stress, bars otherwise effectively anchored	60	80

REINFORCED CONCRETE AND THE HOUSING PROBLEM.

At a recent meeting of the Linthwaite Urban District Council figures were presented showing the cost of the houses erected of concrete under the Council's scheme for providing working-class dwellings. It was stated that the original estimate for ninety-seven stone houses was £26,000, but an alternative scheme for eighty-nine houses at an estimated cost of £18,000 was adopted and sanction to borrow the money obtained. Sixteen houses had been erected at an estimated cost of £3,613 exclusive of land, which was estimated at £175. Rents were yielding £196 per year and repayment of principal and interest amounted to £160. Cost of repairs was placed at £16.

STRUCTURAL DESIGN IN STEEL-FRAME BUILDINGS.

Mr. W. Cyril Cocking, M.C.I., writes with reference to the article and double-page plate by Mr. P. J. Waldram published in the issue of this Journal for April 14: I desire to point out what appears to me to be rather a serious error in the calculations for the pitch of rivets.

For the lengths of flange plates which he specifies the rivet pitch requires to be somewhat less than 4 in. instead of 6 in., as stated in the article.

Referring to the bending moment diagram and designating the 12 in. by ½ in. plate 29 ft. long the first plate, the 12 in. by ½ in. plate 25 ft. 6 in. long the second plate, the 12 in. by ⅜ in. plate 21 ft. long the third plate, and the 12 in. by ⅜ in. plate 15 ft. long the fourth plate, it is necessary to provide sufficient rivets in the horizontal distance from the right-hand end of the first plate to the intersection of the bending moment curve with the outer surface of the second plate to take up the total force in these two plates, the first and second.

Notation d_h = horizontal distance in ins.

F_1 = total force in 1st plate.

F_2 = total force in 2nd plate.

n = number of pitches (in this case 2).

p = pitch of rivets in inches.

r_s = safe load on one rivet on single shear.

$$\text{Then } d_h = \frac{p}{n} \cdot \frac{F_1 + F_2}{r_s} \qquad (1)$$

$$\text{and } p = \frac{d_h \; r_s \; n}{F_1 + F_2} \qquad (2)$$

The following values taken from Mr. Waldram's article are:

$F_1 = 41{\cdot}5$ tons.

$F_2 = 41{\cdot}5$ tons.

$n = 2$.

$p = 6$ inches.

$r_s = 3{\cdot}307$ tons.

Therefore from formula (1):

$$d_h = \frac{6}{2} \cdot \frac{41{\cdot}5 + 41{\cdot}5}{3{\cdot}307} = 75 \text{ inches full.}$$

Scaling from the B.M. diagram $d_h = 48$ inches.

Then from formula (2):

$$p = \frac{48 \times 3{\cdot}307 \times 2}{41{\cdot}5 + 41{\cdot}5} = 3{\cdot}83 \text{ inch pitch.}$$

With a 6-in. pitch the shearing stress on the rivets would be about 8.6 tons per in., whereas the L.C.C. limit us to 5.5 tons per in., thus showing an excess of load equal to about 56 per cent.

Again the added strength of the first three plates $F_1 + F_2 + F_3 = 114$ tons, and the horizontal distance $d_h = 72$ in., from Mr. Waldram's figured dimensions, the pitch in this case (assuming the B curve to be a straight line between the limits of d_h, which it certainly is not), will

$$\text{be } p = \frac{72 \times 3{\cdot}307 \times 2}{114} = 4{\cdot}18 \text{ inches.}$$

If Mr. Waldram had carried his first plate through to the ends of the I beam, which confirms to good practice, and extended his second plate to 14 ft. 3 in. from centre line instead of 13 ft., his pitch of 6 in. would be possible; the first and second plates also require lengthening at the left-hand end of the girder.

This question of rivet pitch is one that seems to cause difficulty to many draughtsmen, though I fail to see why.

It may be taken as a fixed rule that the closer pitch is always required at that end of the girder which has the greater reaction. A very simple and practical method of calculation is given in a paper read by the writer before the Concrete Institute on February 26, 1914, and published in the transactions for 1913-14.

Perhaps Mr. Waldram will correct his drawing, because I am sure he will agree with me that the modern steelwork draughtsman does not require any instruction on "how to cut things too fine."

Should not the fourth plate be 16 ft. long instead of 15 ft., and the dimension 8 ft. be 9 ft.? Apparently a draughtsman's error.

In reply to Mr. Cocking's letter, Mr. Waldram writes:

"Your correspondent has apparently failed to notice that although the rivet pitch suggested and shown is 6 in. (4 to a foot), the pitch is calculated at 4.8 in. (5 to a foot). But in the ordinary method of calculating, as given, no allowance is made for several obvious factors which materially relieve the stress on the rivets. For instance, the strength of the inner plates which the rivets are called upon to develop is calculated as if they were all stressed to 7½ tons/in². Actually, however, this only occurs in the centre of the plate, and less is demanded of the plates nearer to the neutral axis. Thus, the lower ½-in. plate is only called upon to receive 7.5 by 21/23.5 in., or 6.7 tons/in². Then, again, the diameter of a ⅞-in. rivet is not like that of a bolt; it is enlarged to fill a 15-16-in. hole, thus increasing its permissible strength from 3.307 to 3.8 t
Also, after a plate has passed below the
next outside it the rivets developing
strength are in double shear. There
also the indeterminate but not unim
tant factors of the grip of the cooling ri
on the plates in tension, and on the pl
in compression the deducted but fille
rivet holes. It is not feasible in prac
design to make all these allowances,
they are either neglected or, as in
article, the calculated pitch is somew
increased. In the majority of case
pitch of 16 times the least plate thick
is less than any calculated pitch.
within the last few years rivet pitche
compounds were fixed, apparently by
of thumb, at spacings which were theo
cally quite indefensible. One does
seem to recall any failures from this ca
but, on the other hand, there is no evid
that such girders ever received their
loading. This explanation should
found its place in the article, already
long, and I am obliged to your corres
dent for giving me this opportunit
adding it now.

The draughtsman's error in figurin
top plate was only discovered after
diagram plate was made. As the dim
sion only purports to give a scaled len
the diagram was not altered.

I cannot agree with the suggestion
in good practice the first plates are al
made the same length as the joists.

FLOOR-SLAB REINFORCEME

In an exceptionally handsome bo
the British Reinforced Concrete Engi
ing Co., Ltd., 82, Victoria Street, West
ster, illustrate some interesting app
tions of their "B.R.C. electrically-w
steel-wire fabric." In the text it is cla
that the fabric not only complies comp
with the requirement that reinforced
crete floors must possess "extreme
dity, connected continuity, great stre
and direct resistance to tensile stres
but that it offers several additional a
tages.

B.R.C. Fabric is described as a steel
mesh, of which the longitudinal wire
spaced and immovably fixed at regula
tances apart by transverse wires arra
at right angles to the longitudinals
welded to them at each point of co
It is shown that this electric welding
absolute connection, which makes sep
movement of the wires physically i
sible, and thus provides the greates
sible rigidity. It follows that a singl
of reinforcement throughout any rec
length is provided; the material bein
plied in rolls about 7 ft. wide and of
tically any length desired, and formi
continuous beam extending from e
end of the structure. Laid in the co
along direct lines, where the tens
greatest, each wire takes up its full
of work.

The fabric is supplied in handy
which may be conveniently stored u
quired, and in laying it, distortion,
sion, or misplacement of any portion
possible, the fabric being simply u
to bring the reinforcement into its de
position. The steel wire used in th
struction of the "B.R.C. Fabric"
the highest grade, drawn with consi
strain from close-fibred steel, and of
ordinary strength at the elastic
Every coil of wire used is subjec
severe tests at the firm's works, and
the tensile strength is equal to 80,
per sq. in. it is discarded; and the
is even stronger at the welds tha
where.

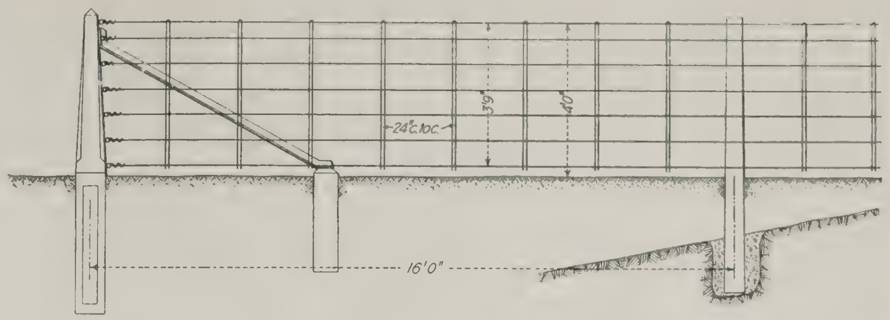
EINFORCED CONCRETE FENCE POSTS.

e accompanying illustrations show types of reinforced concrete posts have been used along the line of the kill aqueduct for the City of New . The four types adopted for end- r and straining posts are all of the general design, the only difference in size, weight, and reinforcement. D post is of a square cross-section, apers uniformly from top to bottom. straining posts are braced by angle and are spaced not more than 600 ft. . Line posts are spaced not more 16 ft.

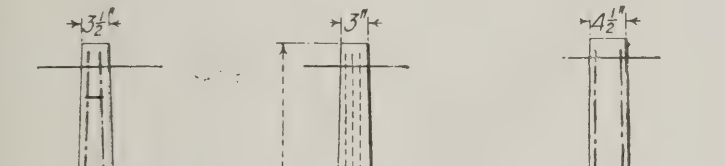
e concrete was composed of 1 part nt to 4 parts aggregate, the finer egates being clean sand and the er aggregates fragments of hard or clean gravel passing a ¾-in. ring. reinforcement, as shown for the ing posts, consists of four ¼-in. med bars, and for the T-posts five ge steel wires.

tle trouble was experienced in cast- e corner posts. They were cast hori- lly in sheet steel forms open at the The exposed face was trowelled, and edges of the upper surface were led by an edging trowel, after the ete had set partially, or by rubbing a carborundum brick after the con- e had cured for some time.

eral weeks of experimenting were re- d to develop a suitable line post. were cast horizontally in moulds of nised sheet iron rolled to the desired and without fixed ends. After casting and the removal of the forms the posts were set up against wooden racks, and a day or two later were piled horizontally, three or four deep, with boards between layers as stringers. These were covered with burlap and sprinkled often enough to keep them moist for at least two weeks. The experiment was tried of covering the posts with hardwood sawdust, the only kind obtainable in the vicinity, and keeping it wet. This method was found to discolour the posts, and it was therefore abandoned. In some posts chipped and broken ends were produced. A gasket of tar paper and painting with blue clay and putty were tried, but these methods were slow and expensive. The trouble was finally overcome by casting a little dry cement in the ends of the forms. This proved effective, and gave a hard and smooth end to the posts.



GENERAL ARRANGEMENT OF WIRE FENCE WITH REINFORCED CONCRETE POSTS.



TYPES OF REINFORCED CONCRETE FENCE POSTS.

Through an examination of broken posts the bond between the smooth cold-drawn wire reinforcement and the concrete was found to be defective. Tests showed that the posts failed by the wires slipping in the concrete rather than by breaking. To overcome this condition the wire reinforcement was cleaned from grease by an application of strong caustic solution and washing with water. Practically the same result was accomplished by slightly rusting the wires with a diluted solution of sal ammoniac.

It was also noted that the strength of the posts was materially decreased when the reinforcement was too near the neutral axis. This misplacement was due to the difficulty experienced in placing the wires in the proper position away from the neutral axis, but not nearer than ¾ in. to the surface. Most of this trouble was experienced with the wires in the rib. The following method of placing the reinforcement was finally adopted: The mould was first filled with 2 in. or 3 in. of concrete. To ensure the reinforcement being in the proper position, a small device was made by bending a piece of wire to the shape of the letter Z. This device was run up and down the rib wire, and pushed the wire away from the neutral axis, but not nearer than ¾ in. to the form.

All posts, except gate posts, were set 4 ft. 3 in. above ground. Type D posts were set 3 ft. 6 in. in the ground, and the line posts 2 ft. 9 in.

The fencing specified was of two general designs—one factory-made, the other woven in the field.

Many methods were discussed for fastening the wire to the posts—such as devices utilising the expansion-bolt principle and metal bands around the posts. After taking into consideration simplicity, permanence and cost, it was decided to use a wrap around the posts for both straining and line posts. At each straining post the wire is cut, and two or three stays stripped off. The fencing is then stretched, and the longitudinal wires wrapped around the four sides of the post and fastened. The corner posts had to be concreted in the ground, otherwise they were pulled out of line in stretching the wires.

In order to compare the relative strength of posts of different aggregate and different reinforcement, tests were made on nineteen posts. The average breaking load for posts made of run-of-bank was 18 lb.; posts made of crushed trap rock, in which non-rusted wires were used, developed a breaking load of 185 lb., while the average for posts with wires slightly rusted was 324 lb., but by substituting three ¼-in. deformed bars for the 5-gauge wires, the average breaking load as obtained in five tests was increased to nearly 500 lb.

LIME CONCRETE IN THE EAST.*

BY E. A. W. PHILLIPS, M.INST.C E., M.C.I.

STONE lime of great purity, and consequently non-hydraulic, is used largely in India and Burma, and engineers have learned to place considerable confidence in the material. To enable it to set under water, it is mixed with "Soorkhee,"† the homra of Egypt. To the present day engineers in India do not know exactly how much soorkhee is required by each kind of lime, and this ignorance is due to the want of scientific laboratory tests, of the kind so frequently made in Europe. It seems no advantage to send lime and soorkhee to England to be tested, since the difference in climate, the sea voyage, and the lapse of time in transit might vitiate the results. Conservative Indian opinion, based on long experience, approves of a mixture of a half-part of under-burnt with a half-part of well-burnt soorkhee to one part of slaked lime and one part of sharp, clean sand, all measured in bulk, dry. The materials are thoroughly incorporated and ground in a mortar-mill, either under one wheel pulled round a circular track by a bullock, or in a pan-machine under a pair of wheels. The mortar should be a thick reddish paste, in which the particles of lime cannot be distinguished by the naked eye. A mortar made in this way sets very well indeed in still water, but it sets comparatively slowly, and some engineers (the author included) add, when necessary, a proportion of Portland cement to the mixture. The introduction markedly hastens the setting to an extent depending on the proportion of the cement to lime. One part cement to one part lime by volume sets apparently as quickly as cement mortar. In the early stages of setting the strength of the concrete is much increased, admitting of early handling and removal of moulding boards. The addition of cement preserves soorkhee mortar in wet foundatons from the evils of percolation, and the cement, besides, seems to have a chemical (?) effect on the lime, fixing the particles and aiding in a more solid set.

First-class soorkhee mortar, several centuries old, it has been asserted, exceeds Portland cement mortar, 1 to 3, in strength and impermeability, and is said to be often equal to 1 to 2½. In regard to economy there is no comparison in Rangoon, cement costing (1909) about two rupees per cubic foot, and lime only three-tenths of a rupee per cubic foot. Further, in comparing the two classes, it has to be remembered that while native Indian masons are very clever in dealing with lime, they often make bad mistakes in dealing with Portland cement, and have to be specially taught its use and carefully watched besides, as they are stupidly stubborn.

Where a mortar mill cannot be obtained, or when the work is too small to justify the expense, stone lime is thoroughly slaked by being steeped for twenty-four hours to a week or more in fresh water, being kept constantly covered and stirred at intervals with a rod. The result is a perfectly slaked lime, and a breaking up of all but the very hard particles. The wet lime is first mixed very thoroughly with the sand, the particles of the sand tending to still further break up and sub-divide the lime. Soorkhee, very finely hand-pounded and screened, is then added in small quantities, and if the operation is properly done, it should be a little difficult to detect that the mortar has not been prepared in a mill. This is the best native Indian practice when a mill cannot be got. Tradition asserts that the stone lime in the Taj Mal of Agra was steeped in water nearly a year before use.

The author then gave a description of a number of experiments which had been made by himself and others as to the effect of adding lime to Portland cement in making mortars and concretes, namely, as to the effect upon the setting time of cement, the tensile strength of the mixture, the effect of lime in increasing the resistance to percolation of water through cement mortar, and the crushing resistance to concretes and mortars made with varying proportions of cement and lime.

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Messrs. William Jacks and Co., of 5, East India Avenue, London, and 111, New Street, Birmingham, ask us to state that they are not connected with the Glasgow firm of the same name who have been prosecuted in Edinburgh by the Government under the Trading with the Enemy Acts; that no member of their firm has any interest in such Glasgow firm, and that no member of such Glasgow firm has any interest in their firm.

SIEGWART SYSTEM AT THE LIVERPOOL CITY SANATORIUM.

Hollow Siegwart roofing supplied by the Siegwart Fireproof Floor Co., Ltd., Thanet House, 231, Strand, W.C., was adopted at the Liverpool City Sanatorium, Fazakerley, as shown in the illustration given below. These concrete beams are manufactured at the works, and have only to be grouted together when they arrive on the site. Further points justifying the choice were the soundproof qualities of the floor, and also the fact that owing to the beams being hollow throughout, it forms a perfect insulation against heat and cold. The architects are Messrs. T. R. and V. Hooper, AA.R.I.B.A., of Redhill, the builders being Messrs. W. Hall and Son, Liverpool.

PAINTS FOR CEMENT AN CONCRETE SURFACES.

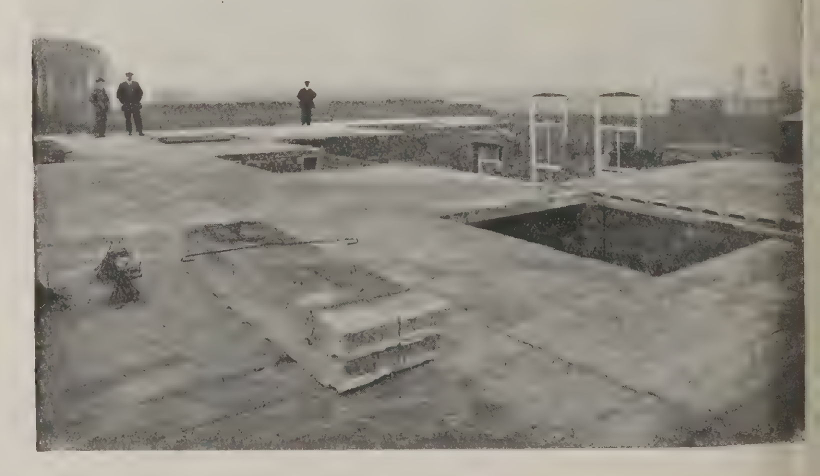
The presence of lime in the cemen disturbing factor in the durability paints, for lime reacts upon the v oleaginous constituents, saponifying and forming a soap that is largely i mental in hastening the distintegrati the pigments.

In order to combat the saponificati oils in paint a preliminary treatment, the object of neutralising the activity lime, has been tried, with very succ results. One of the best known of treatments was suggested by Macn and consists in the application of a 2 cent. solution of zinc sulphate as an u coat to the paint. When zinc sulph applied to cement chemical changes resulting in the formation of two iner stances, calcium sulphate and zinc oxide. The lime being now "killed i safe to apply good oil paints without f non-durability.

It is also claimed for the Macnicho cess that cement can be succes painted before it is thoroughly drie but such procedure would appear unw

Probably zinc oxide ground in pur seed oil is the best single pigment that can be applied to cement, espe where the cement is exposed to the s of towns. The formation of sul causes the gradual blackening of paints, but since the sulphide of z white the change from oxide to sulph not apparent.

In the North of Ireland, cement- houses are numerous, and experienc taught the owners that the best w treat the exterior walls is to let thoroughly dry out before applyin protective materials. When once d cement is painted with pure boiled l oil, which darkens the appearance considerably, but this dark appea passes off in a short time. This pre ary treatment with oil serves two pur it renders the walls impervious t moisture so prevalent in Ireland neutralises the lime. After one years the cement is in excellent co for painting, and two coats of good have been known to last many years out showing any lack of durability.



SIEGWART SYSTEM AT THE LIVERPOOL CITY SANATORIUM, FAZAKERL

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* Extracts from a Paper read before the Concrete Institution at the last Meeting of the Session.

† "Soorkhee" in India is finely powdered red brick.

RCHITECTS AND WAR SERVICE.

C. Stanley Peach, F.R.I.B.A., Sub-Commandant, sends articulars of the 4th Battalion "Architects" Central Regiment Volunteers, in which a great effort in recruit- being made, with the object of improving the results d by the recruiting agency and of training men to meet her calls which one has every reason to suppose will later nade by Lord Kitchener.

2,000 members of the architectural profession are now with the colours, and others, who for one reason or are unable to enlist, are serving their country at home cely less useful ways.

last autumn, as the result of a conference initiated by val Institute of British Architects, at which all architec- societies were represented, after considering the best in which the resources of the profession could be , the work of forming a War Service Bureau was dele- to the Architectural Association, and it was entrusted cruiting for the Army and the training of Volunteers.

ecure united action in these important directions the com- of the Volunteer Training Corps then formed approached rveyors' Institution, the Auctioneers' and Estate Agents' te of the United Kingdom, the London Master Builders' ation, the Junior Art Workers' Guild, and a Recruiting (later recognised by the War Office) was started at fton Street, Westminster, S.W.

een 750 and 800 men have passed through this agency e forces, and some 600 men have now been trained in the from which many men, unable at the beginning of the enlist, have now joined the Army with the advantage of ncing their career with a knowledge of drill and military ne.

successful organisation of the corps and its proved use- more than justifies an increase of its numbers, to which new company is being recruited, the headquarters of will be at the Central Electric Supply Company's Generat- tion, Lodge Road, St. John's Wood, N.W.

headquarters of the corps are at the Architectural Asso- , 18, Tufton Street, Westminster, S.W., and local head- s have been established at Dulwich College, the Mercers' , Holborn (by kind permission of the masters), and at the ctural Association Sports Ground, Boreham Wood, . Further drill centres will be arranged for new platoons lities most convenient to members.

idea of the thoroughness and practical nature of the g can be gathered from the following summary of in- n given: School of arms, gymnastics, physical drill, and t fighting; squad and company drill; musketry instruc- ring on miniature range; signalling and field engineer- clists, scouts, and ambulance work; week-end and other are held periodically, at which advanced practical train- military work is given. The field engineering section y erected a bridge 72 ft. long in seven working hours. In n to company and extended order drill, the members are ted in marching by compass, map reading, route march- y and night outposts, and long-distance signalling. At ster camp the corps were in billets in Epping Forest, and tsuntide a most successful camp was held under canvas down Forest, where the whole of the catering, cooking, er camp duties were carried out by the members. transport was most efficiently performed by the Battalion ort Section.

proposed to hold another camp under canvas at the end and beginning of August, at which combined training ther battalions of the Central London Regiment (Volun- and other corps will be held to complete and improve the f the training and instruction already received. At each he Post Office Engineering Corps Volunteers, whose rs form a highly efficient signalling company of en- , co-operated, and greatly added to the interest of the g.

y section of the corps, by its keenness and its efficiency, great credit on the activity and unceasing efforts of its , amongst whom the corps is to be congratulated in the ion of its Commandant, Lieut.-Colonel Warden, of the Army (retired), and of its Sub-Commandants, C. Stanley and Major Monson, and its Adjutant, L. R. Guthrie, and ther well-known men.

corps is urgently in need of recruits to make up for the n of its ranks caused by men who have passed through ore extended spheres of usefulness in the Regular and rial Forces of the country, and to carry on and extend k of recruiting and training men for these forces. All rs of the architectural and surveying, auctioneers' and gents' professions, and the building and allied trades are . Enrolment forms may be had on application to the t's Office, 10, Conduit Street, W., and should be d to the Adjutant on completion.

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dorsed with the name of the school conc
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vered not later than noon on Monday,
July, 1915.

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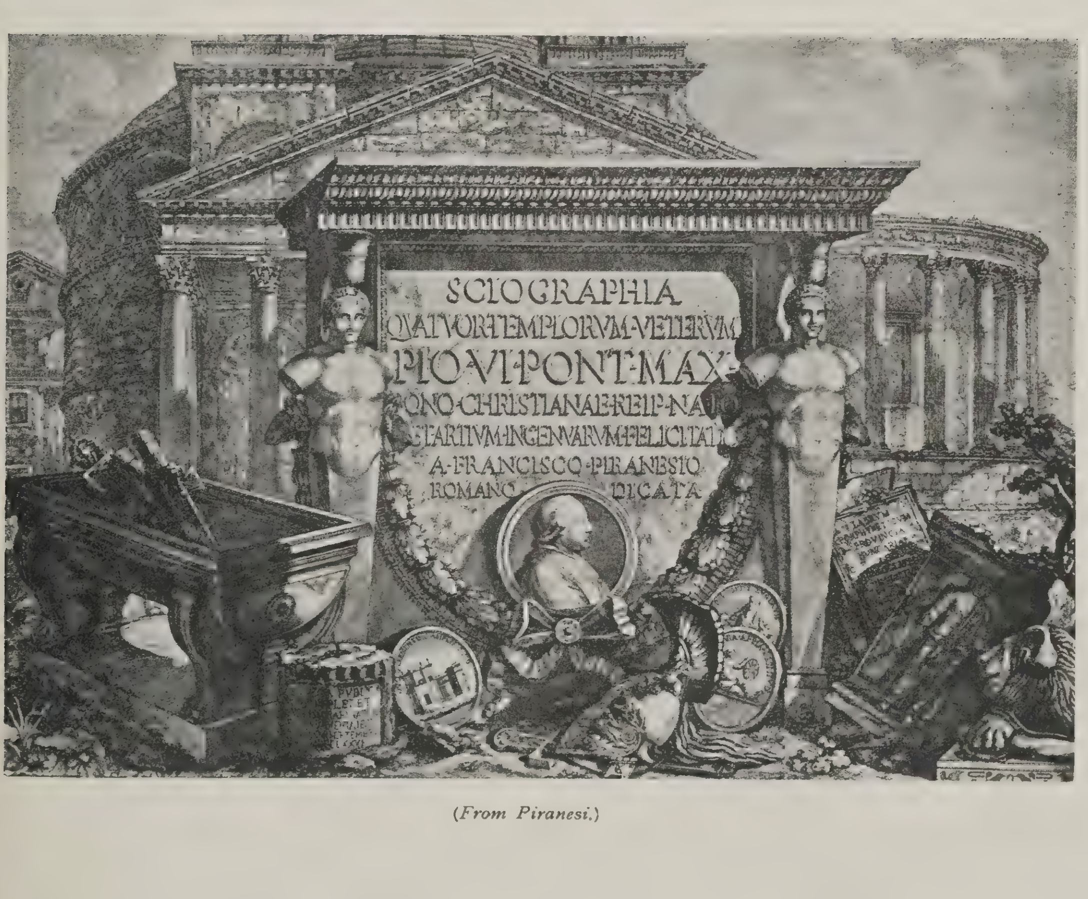
THE
ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, June 30, 1915. Volume XLI. No. 1069.

No. 141.



(*From Piranesi.*)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JUNE 30, 1915. TOTHILL STREET, WESTMINSTER. VOLUME 41. No. 1069.

EDITORIAL.

AN inquiry from a correspondent relative to the design and construction of military buildings led us to consult a chapter on the subject in M. Emile Guillot's "Edifices Publics." In glancing through the illustrations to that chapter, one is immediately struck by the superior character of the elevations as compared with the generality of buildings similarly occupied in our own country. Most of the French examples—even the plainest of them—are pleasant to look upon, though some of them—notably the Caserne des Célestins—are rather overdone in the elaboration of decorative detail. This exuberance, however, is a rather exhilarating contrast to the uncompromising plainness of most of our own barrack exteriors. If, as may be reasonably supposed from the present trend of events, we are in future to maintain a much larger standing army than was thought to be necessary before our eyes were opened to the grim necessity, it follows that much more barrack accommodation must be provided. It will differ in character as well as in extent.

* * * *

In all respects the new type of barracks should be greatly superior to the old. Not only should the elevations be made much more attractive, but the interiors might be easily made more homelike without destroying their essentially military character. In the French ministerial circulars of May 30, 1907, a new note was struck in the first paragraph, in which it is said that, the army and the nation having become identical, "the barrack has become the house of all." Next follows the deduction that the influence of the barrack will be decisive and general. It ought therefore to be a good influence. Barracks should be not merely healthy but pleasant and comfortable. Provision should be made not merely for eating and sleeping, but for social life—for education, entertainment, enjoyment. That is the French view, and to a certain extent it is realised in our own barracks. Further amelioration may be confidently anticipated. Whether or not we get conscription—and especially if we do not—military service will be henceforth regarded as an obligation of citizenship, and the more numerous barracks will be built and equipped in the knowledge that, as countless thousands of our soldiers have proved and are proving, a splendid fighting spirit is by no means incompatible with the graces and refinements to which the new type of soldier was born. Without the smallest disparagement to the original units, it may be confidently asserted—is indeed, a matter of common assent—that since the war the general tone of the rank and file of the army has been sensibly raised; and, after the war, the barrack environment will respond sympathetically. Not that luxury of any sort comes into the question. The more gently nurtured the soldier, the more good will he get from "roughing it." But neither rigid economy nor Japanese simplicity need prevent a barrack interior from being made cheerful and comfortable.

That we can now ask for amenity, taking sanita
for granted, we owe in great measure to the late
Edwin Chadwick, "whose labours for the health of
kingdom had no parallel for ingenuity of resource
breadth of view." The tribute is that of Sir Benja
Ward Richardson, who went on to speak of the v
derful effects of a few simple improvements—sub
drainage of the site, free admission of air
light to every inhabited room, the abolition of
pools and the substitution of water-closets with
plete house-drainage, the abundant supply of
water, and the means of removing all solid house re
that water could not carry away. These innovation
they were in the 'fifties, stamped out typhus fever,
reduced the average mortality by eight or nine
thousand; but, even then, as Sir B. W. Richar
records, "the army was being decimated in time
peace by bad sanitation, much more severely tha
ever was by active warfare and killing skill in
presence of the worst enemy." In the Crimea,
foe of insanitation" was more deadly "than any
or shot of the enemy," but Mr. (afterwards Sir Ro
Rawlinson and a staff of sanitarians were sent out
"achieved what might be called the sanitary salv
of the troops. It made a new era in the engine
part of our sanitary service, never to be forgotten.
a Social Science Congress held at Liverpool, an Ir
Sanitary Commission was projected by Sir E
Chadwick. The proposal gained the support of
Florence Nightingale and Mr. Sidney Herbert, an
Commission effected a complete reform among
troops in India, where previously, as Sir B. W. Ric
son had proved, a regiment a thousand strong
"dissolved away at the rate of one hundred
twenty-five a year."

* * * *

Those pioneers of sanitary science—Chad
Richardson, Neil Arnott, Parkes, Southwood S
and the rest—are doubtless held in grateful me
by the army of sanitarians who to-day are carryin
the work with such marvellous effect in camp and
and on ship-board that, as Mr. Walter Lon
President of the L.G.B., was able to testify i
House last week, the millions of men on active se
are being kept remarkably free from preven
disease. At the very outset of the war, there
dismal prophets who confidently predicted tha
vast and unprecedented aggregations of men
inevitably set up epidemics of unparalleled magni
but hitherto sanitary science has been quite equ
the stupendous occasion. No doubt the enlistme
so many men skilled in sanitary science or craft
ship has been of immense service to this end, an
consciousness of being able to do good work i
way must have been in many instances a strong in
ment to join—sometimes the deciding factor a
the few who may have been disposed to waver.

At last week's meeting of the London County
uncil, Sir John Benn declared himself in favour of
policy of "every penny for the war-chest." He
d, of course, the licence of hyperbole; and although
added that "in the present circumstances this policy
ld not be too strictly adhered to," it is evident that
declaration also is not to be construed quite
rally. Otherwise the Council might as well sus-
d all its functions except the essential duty of levy-
rates. It would be unnecessary to hint at such a
uctio ad absurdum were it not for certain indica-
ns, observable in various parts of the country, of a
gerous tendency to put a literal construction on
rances that should be, and are usually meant to be,
en rhetorically. It is not everywhere understood
t publicists are much in the habit of shooting at the
on in order to reach the tops of the tallest trees, and
oderate action is the consequence.

* * * *

Any attempt to introduce a steadying influence is
llenged as "unpatriotic if not treasonable": and
Arnold Bennett, it may be supposed, was prepared
incur this stigma when, in the "Daily News" of
e 22, he examined the position that he believes to
e been created in the building trade. His state-
nt of the case is that "the Government, chiefly per-
s through the Education Department and the Local
vernment Board, has been active in the building
le. At the beginning of the war local authorities
e advised to inaugurate special public works, with a
v of preventing unemployment. When unemploy-
nt, instead of developing, actually decreased, this
ice was withdrawn. The building trade, though
emely disorganised by the war, had of course no
plaint to make. But the Government departments
not stop there. They advised that even normal
lic works should be dropped. The Education
artment has set its face against all building. Public
ks arranged and tendered for have been stopped,
in some cases works actually begun have been
ndoned until after the war. The total result of the
certed Government action is that building by public
orities has come almost to a standstill."

* * * *

o cite Mr. Bennett does not necessarily imply
roval of his opinions or assumption of responsi-
y for his data. Indeed, it seems to us that in one
wo of the particulars he is not strictly accurate, and
he has rather exaggerated the whole case. He
ents, nevertheless, a point of view that should be
en into serious consideration. He admits, with
oming loyalty, in further passages in the same
le, the necessity for employing all fit men on war
ice, but he asserts that when all these have been
drawn from the building trade there remain about
out of a hundred who, "refused both by army and
munition factory," incur great hardships through
stoppage of work. His contention is that "the vast
ority of the building unemployed (much more
erous than trade returns show) are doing and can
nothing to help the war, and their misfortune . . .
r loss of economic independence, are doing some-
g to hinder the war." Mr. Bennett does not men-
it. and it seems rather superfluous to add, that in
natter of hardship the case of professional men and
ers is rather worse than that of the manual workers.

* * * *

ow, if amelioration were impossible, and if repre-
ations on the subject would merely embarrass the
ernment in the stupendous work that they have to
absolute silence and inertia might be a counsel of
iotism, and Mr. Bennett's outspokenness might be
y regarded as a breach of it; but the common-sense
is that the Government should be, and probably
rateful for all the guidance it can get on matters
which it cannot be expected to be fully conversant
ss it can be kept well informed through the accredited channels of information and opinion; the chief of these being the reputable Press, which is the natural medium of pen-publicists such as Mr. Arnold Bennett; and it is mainly through the Press that representative professional organisations are moved and enabled to proffer the information and assistance of which, no doubt, the Government is glad to avail itself. The Press, therefore, may not be silent; but in these times it must be sympathetic if it is to be patriotic.

* * * *

Last week, in referring briefly to the projected removal of the Tolbooth Steeple, Glasgow, to another site, we mentioned an objection to the general practice of transference. Had space allowed, we had intended to add that such removal very obviously falsifies association in two places—leaving the one place bereaved, and going to the other as an intrusion. Not only will the Tolbooth be missed from and alter the character of its old *milieu* (although, it is true, it will be only "just over the way"), but it will make the Gallowgate still more different from what it was as Johnson and Boswell saw it when they put up at the "Saracen's Head" on their return from their tour in the Hebrides in 1773, and even from what it was in 1803, when Wordsworth, his sister Dorothy, and Coleridge, rested there for a night. But then the "Saracen's Head" itself is gone, all but a small portion of it which stands at the corner of Saracen Lane. In the debate on the steeple by the Town Council, there were not only arguments for and against transference. One councillor had the courage to suggest a *tertium quid*—that the steeple be taken down and not re-erected.

* * * *

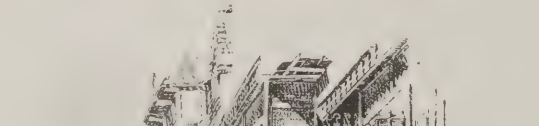
The project of "bringing up to date" St. George's Hospital rather diminishes our joy at hearing that the hospital is to be spared for an indefinite tale of years; and the thrill is also the less exquisite for the reflection that Westminster Hospital will *ipso facto* remain a disfigurement to Broad Sanctuary for many a weary year to come. There would be about equal pleasure in preserving the one and demolishing the other; but if the bad building (which, however, has been described as "noble") is to remain, and the good one to be robbed of such charm as Wilkins could give it, we are not, it seems to be over-much indebted to this instance of the fortune of war. Rather oddly, the proposed combination of the two hospitals would be a sort of re-marriage of the divorced; for St. George's Hospital originated with a party of dissident governors of Westminster Hospital, who, in 1733, converted Lanesborough House into an infirmary. What is now Hyde Park Corner was then *rus in urbe*, and the old house had inscribed on its front the distich: "It is my delight to be Both in town and country."

* * * *

William Wilkins, R.A., who built St. George's Hospital in 1831, became six years later Professor of Architecture at the Royal Academy. He is best seen in his portico of University College, Gower Street; and what Fergusson calls his "painful failure in Trafalgar Square"—the National Gallery—is condoned by that author in the remark that "Wilkins had talent enough to erect a creditable building if he had had fair play," whereas, as everybody knows, he was hampered by most exasperating conditions. But perhaps Wilkins had too much talent. He aspired to excellence in both Classic and Gothic. "While he was building the severely Classical College of Downing at Cambridge, he was also building the picturesque Gothic New Court at Trinity College in the same university." Fergusson realises "it is absurd to suppose he could be sincere in both, if he knew what Architecture was; but the feelings of his heart, so far as we can judge, were towards the pure Greek." "Feelings of his heart" is good. Evidently Fergusson would not concede that the Goths had a monopoly of the emotions.

HERE AND THERE.

I SHOULD not like the occasion to pass without paying some tribute to the late Mr. Mallows as an architectural draughtsman. In many an architect's office is hung a masterly perspective of some projected scheme—competition drawing or Academy perspective —which is plainly from the hand of C. E. Mallows. One cannot mistake the style. It is all firm work, put in by a man who could draw with remarkable facility, and knew exactly what effect he wanted to produce. There have been architectural draughtsmen of all kinds, from poetic impressionists like Whistler to black-and-white perspective merchants whose buildings have the appearance of being poured out complete in cast-iron. C. E. Mallows was neither of one class nor of the other. I do not think of a Mallows competition perspective as the sort of drawing that would get a high price at Christie's, but it is a thing nevertheless which looks admirable in an architect's office, a workmanlike drawing in which one can study the draughtsman's skill appropriately from a professional point of view; a drawing, moreover, that shows how the stamp of excellence can be set upon what we may call a workaday piece of work. And these perspectives possess the merit of showing us the architectural design in detail as well as in mass. Much as I admire the artistic quality that belongs to suggestive, imaginative drawings of modern architecture, I cannot help feeling that there is a tendency in them to be incomplete. While good detail will never make a fine building, a building may be fine in spite of bad detail. But in the type of perspective which gives us an impression of a design rather than the design itself, we hardly know whether the architect has done his own part well or ill. It is a kind of drawing which is at the opposite extreme to the cast-iron perspective with every moulding sharply outlined and the shadows cast with gross solidity. Mallows's method escaped both extremes. It displayed the hand of an artist as well as the hand of an architect, and if our eye catches such details as cornices ruled in somewhat mechanically and the globes of the electric-light standards just turned quickly with h compass, there is admirably free draughtsmanshi i the ornament, in the cartouches with plans on then i the cabs and motor-cars and the smartly dre e people whom one expects to see in the vicinity of h respectable building; while trees are put in with h sure touch of one who could draw trees with his e shut.



From a Pen Drawing by the late C. E. Mallows.

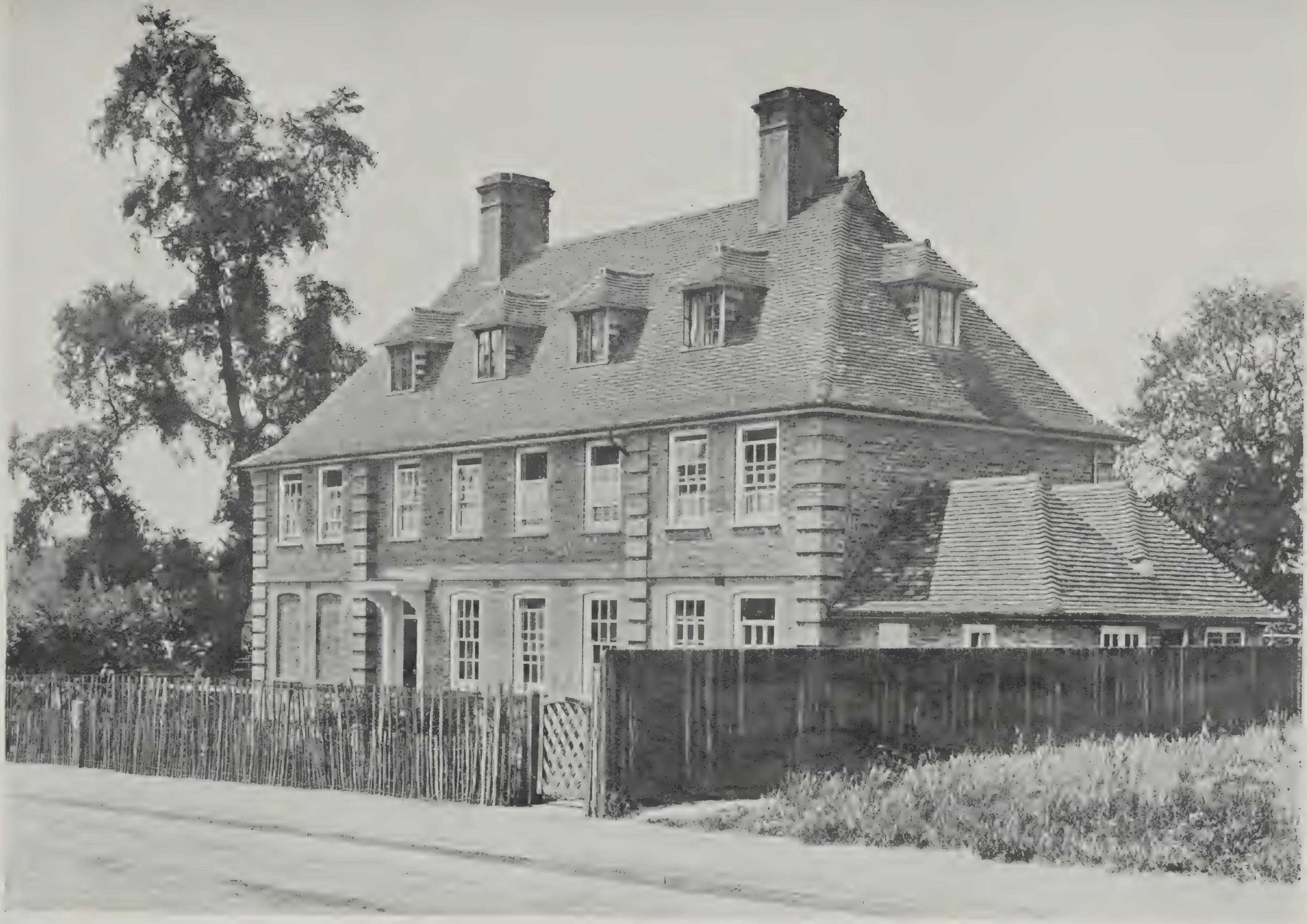
* * * *

But if a clever perspective of "New Munic a Buildings at ——," or of "Asperdown, ——: Ga e Front" is not exactly what we should clamour to v with, there are drawings by C. E. Mallows, hol a drawings, that are a delight to study. There is n especially which I call to mind, a pencil drawing c Blois, looking along the high gallery: a most brill r piece of draughtsmanship. Another fine examp shown by the accompanying small reproduction of n of his pen drawings, of a street in Cairo. Pen-and n work demands a perfectly sure hand. You may fu l with a brush and finally get something of an effec c you may worry a pencil drawing until it looks passa l but no such tinkering is possible with pen and ink. pen drawing is either right from the start or it is wr n Mallows's pen drawings were always right. h little Cairo sketch, for instance, shows how excelle t the architectural composition is rendered, and, c dentally, with what variety of treatment the shac w are drawn in. Daniel Vierge, the great Spai s draughtsman, was, I should say, the source of Mall s inspiration.

* * * *

A week or so ago I was one of a little compan c the Technical Press, at luncheon, when Mr. Barker h well-known specialist in heating and ventilan explained the mysteries of the underworld c London's latest and largest hotel—the Regent Pa c Hotel that rears its astonished head over N h County Fire Office in Piccadilly Circus. And M Barker told us of a circumstance which may well b th subject of a little homily for the commercial w l There is in this great hotel a control room, where gi round about with wires and levers and switches in indicators, the man in charge can see at a glance h is the position of affairs in all parts of the building, o much air is being delivered into each of the recep c rooms, what is the temperature of it, how much v t there is in the sixteen large water tanks, what i th boiler pressure, the temperature of the hot water th proportion of CO_2 in the flue gases in the chimney in so forth; and not only can he see what is going or b he can control it also. Special instruments e required for this room, and it is in respect of these h the homily finds its application. Mr. Barker cons t the catalogues of all the English makers, but coul n nothing in them that exactly suited his requirem nt He settled down therefore and designed special in r ments. The drawings he took to several prom e English makers, who, however, proceeded to hum a to ha, said they had never done anything of the in it would not pay them, etc. Weary of this so reception, Mr. Barker, against his desire, got into o munication with some German instrument maker a went over to Berlin. The German representa v were, so to speak, waiting on the mat with the il They fell over one another in their anxiety to ge th business; took up the drawings at once, mad u specimens, and generally displayed great bus e enterprise. That was three days before War lo out. Mr. Barker then had to hurry home while y there was time, and the German business of c a came to nought. In the end some English m e were persuaded to take up the work, and they are no engaged upon it. All of which serves to show a that, whatever the result of the present conflict, Er li manufacturers *must* change their attitude if the a going to meet outside competition. The rebuildi g Belgium will offer them a huge opportunity.

UBIQ E.



MODERN DOMESTIC ARCHITECTURE (SERIES II.). XV.—"STOREY'S END," CAMBRIDGE: ENTRANCE FRONT.
A. H. MOBERLY, M.A., A.R.I.B.A., ARCHITECT.

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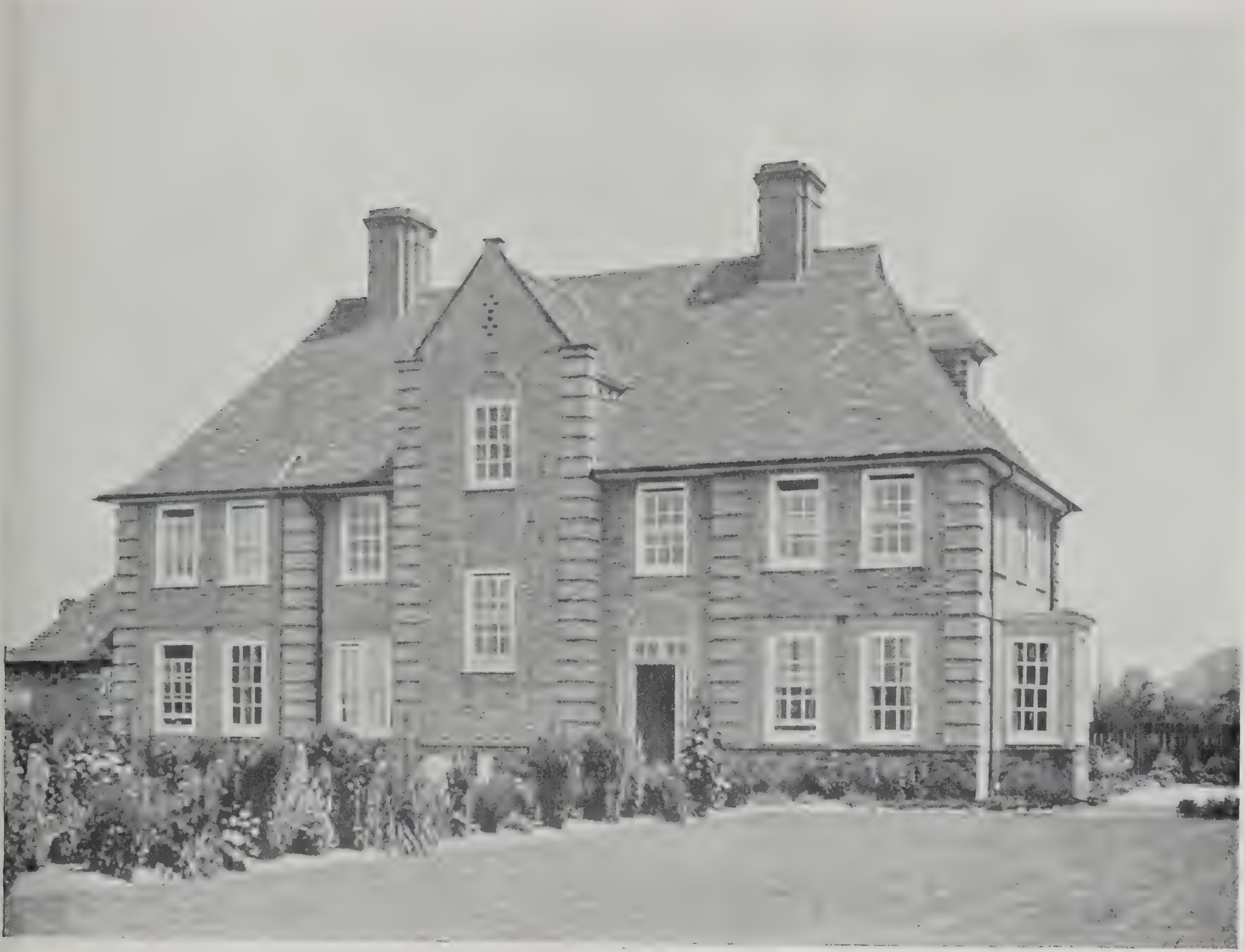
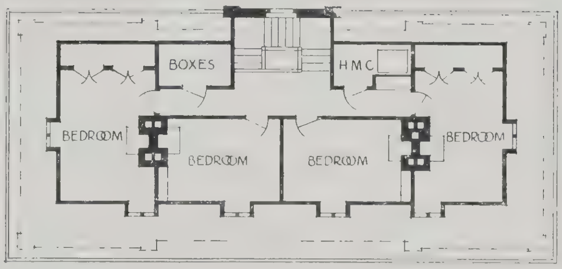
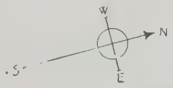
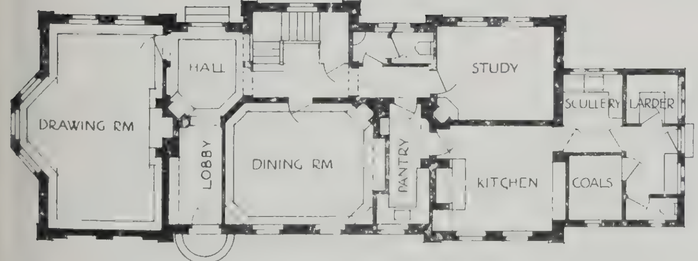


Garden Front.

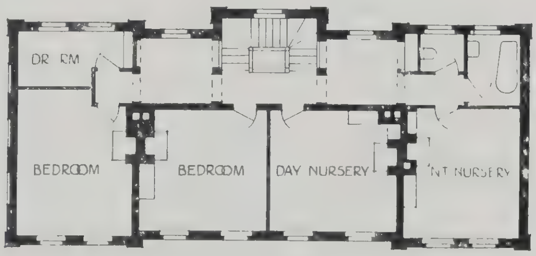


ATTIC PLAN





GROUND FLOOR PLAN



FIRST FLOOR PLAN

SCALE OF FEET

MODERN DOMESTIC ARCHITECTURE (SERIES II.). XVI.—"STOREY'S END," CAMBRIDGE.

A. H. MOBERLY, M.A., A.R.I.B.A., ARCHITECT.

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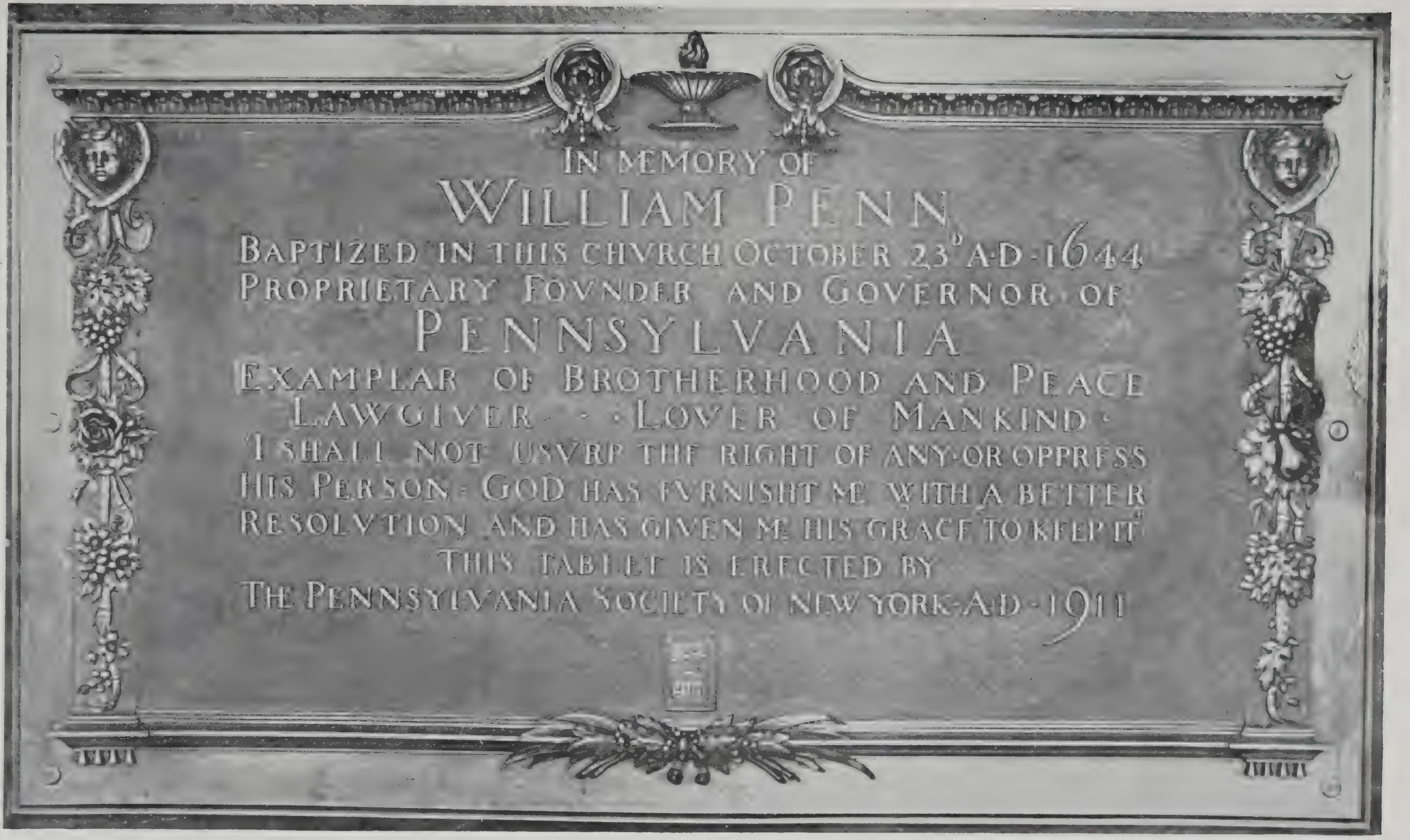
IN MEMORY OF
WILLIAM PENN
BAPTIZED IN THIS CHVRCH OCTOBER 23D A·D·1644
PROPRIETARY FOVNDER AND GOVERNOR OF
PENNSYLVANIA
EXAMPLAR OF BROTHERHOOD AND PEACE
LAWGIVER · · LOVER OF MANKIND ·
"I SHALL NOT USVRP THE RIGHT OF ANY OR OPPRESS
HIS PERSON · GOD HAS FVRNISHT ME WITH A BETTER
RESOLVTION AND HAS GIVEN ME HIS GRACE TO KEEP IT"
THIS TABLET IS ERECTED BY
THE PENNSYLVANIA SOCIETY OF NEW YORK·A·D·1911

TABLETS AND INSCRIPTIONS. V.—MEMORIAL TO WILLIAM PENN IN THE CHURCH OF ALL HALLOWS, BARKING.
McKIM, MEAD AND WHITE, ARCHITECTS.

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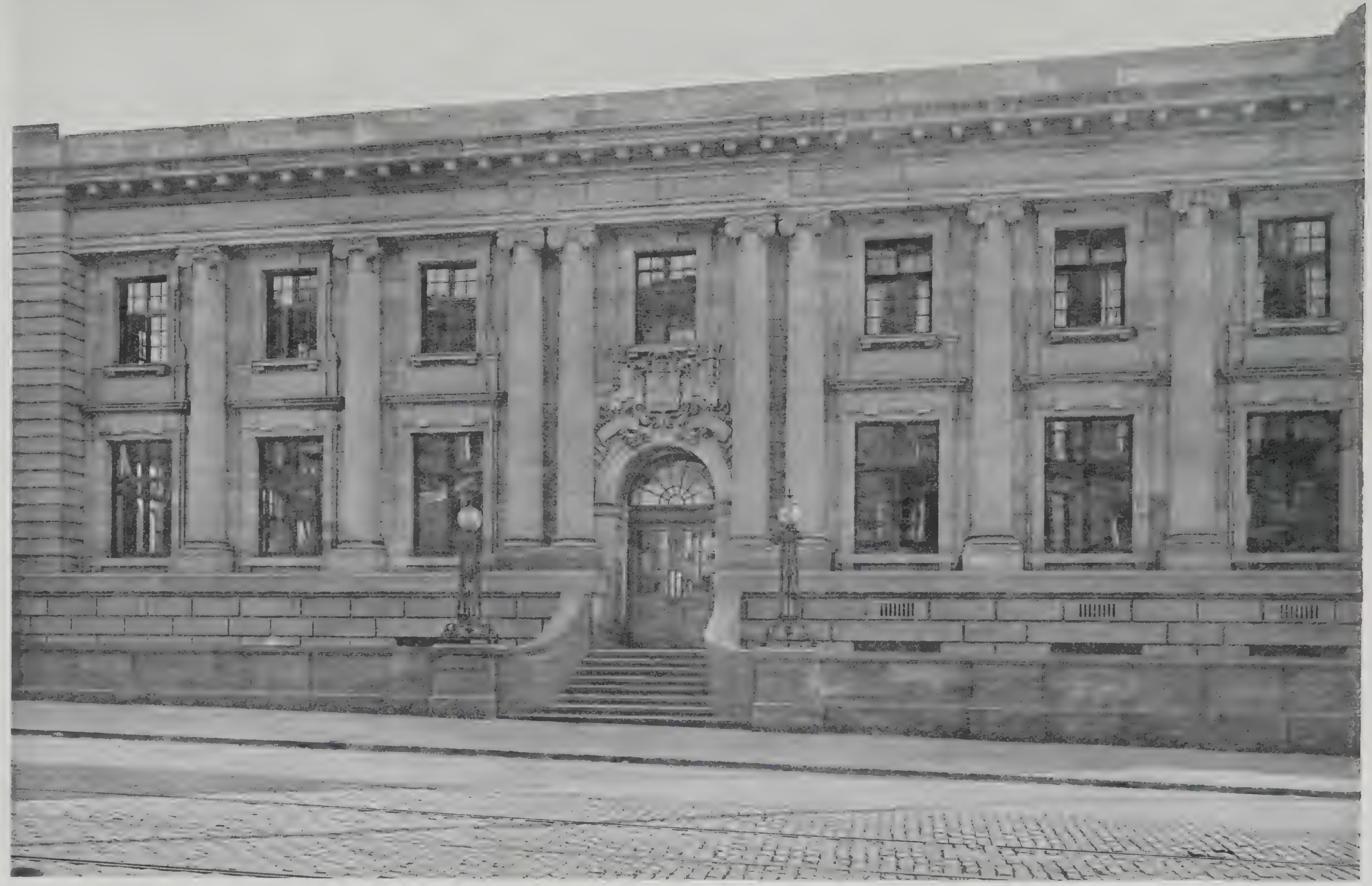

CURRENT ARCHITECTURE (SERIES II.). XXVIII.—PUBLIC LIBRARY, CLYDEBANK, GLASGOW.

A. McINNES GARDNER, I.A., ARCHITECT.

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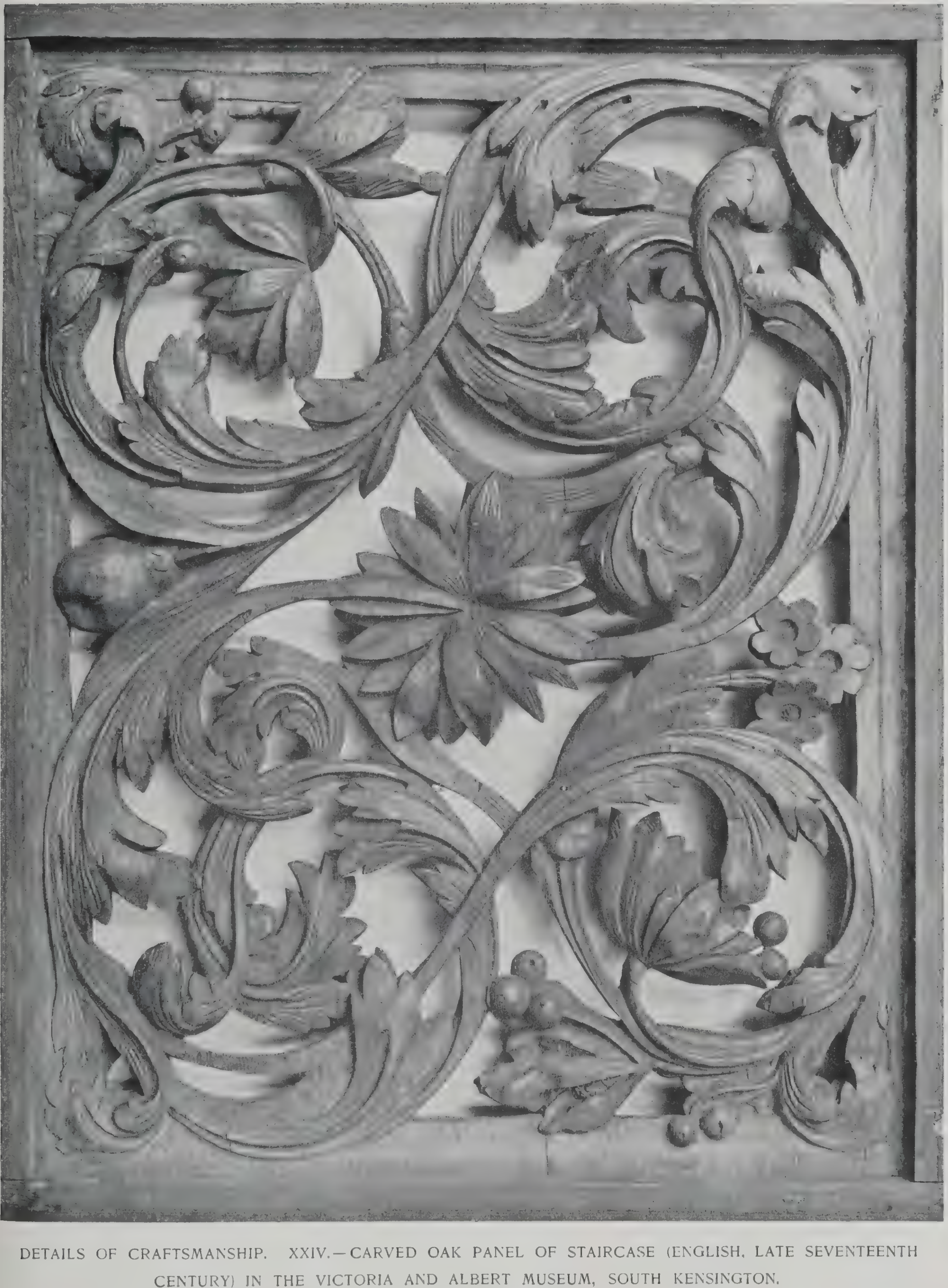
t to "*The Architects' and Builders' Journal,*" *Wednesday, June* 30, 1915.



DETAILS OF CRAFTSMANSHIP. XXIV.—CARVED OAK PANEL OF STAIRCASE (ENGLISH, LATE SEVENTEENTH CENTURY) IN THE VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.

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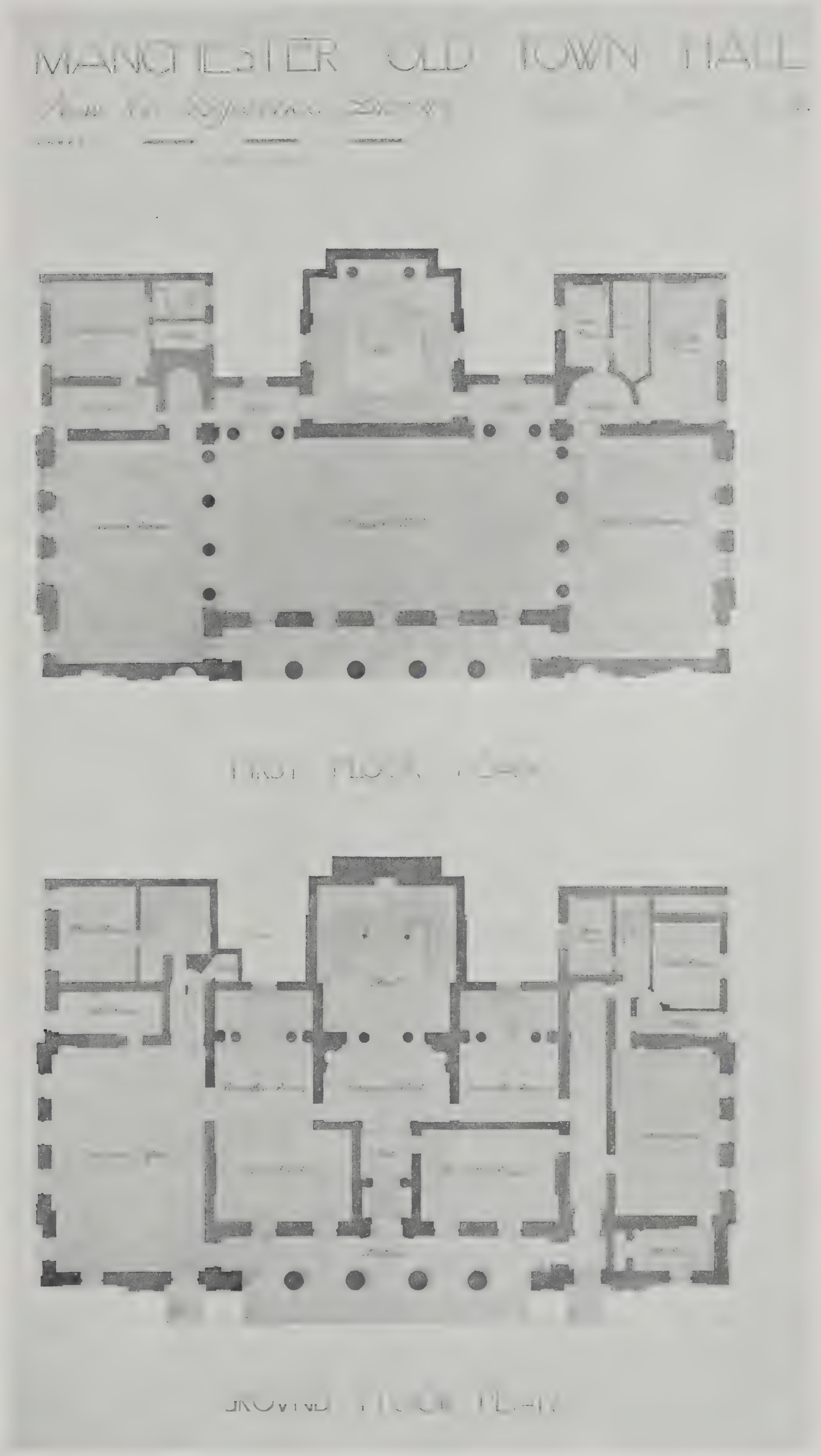

MANCHESTER OLD TOWN HALL. IV.—PLANS. MEASURED AND DRAWN BY GORDON HEMM.

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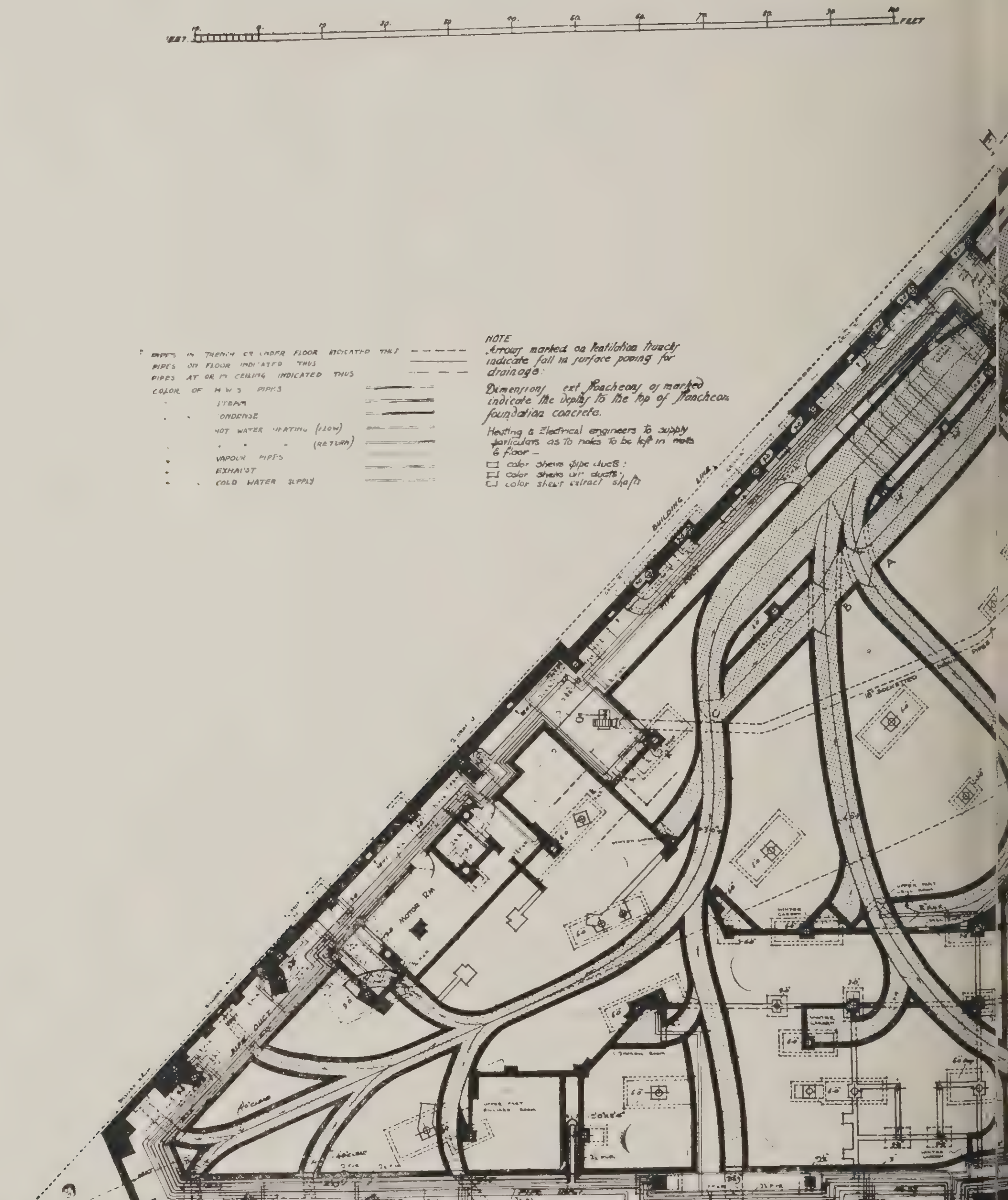
PLAN OF WORK BELOW BASEMENT,


FEET
10
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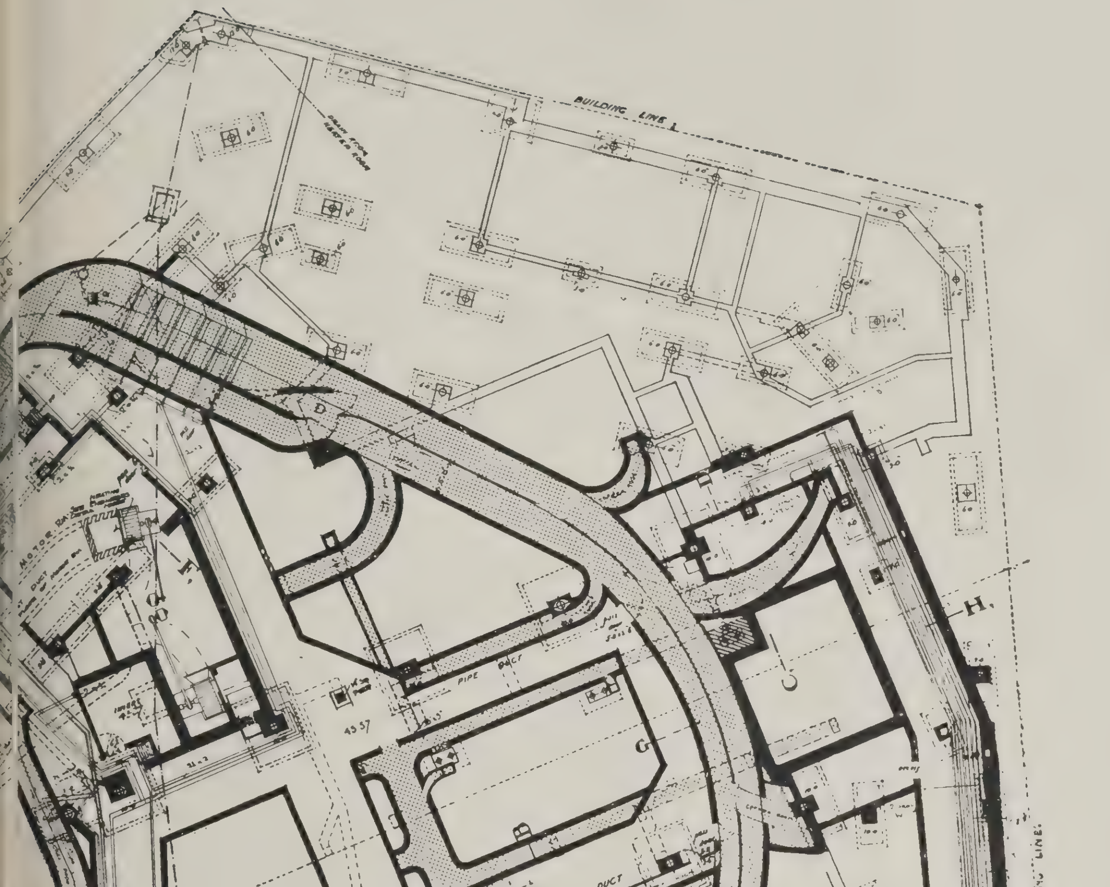
100
FEET
PIPES IN TRENCH OR UNDER FLOOR INDICATED THUS
PIPES ON FLOOR INDICATED THUS
PIPES AT OR IN CEILING INDICATED THUS
COLOR OF H W S PIPES
STEAM
CONDENSE
HOT WATER HEATING (FLOW)
(RETURN)
VAPOUR PIPES
EXHAUST
COLD WATER SUPPLY
NOTE
Arrows marked on ventilation trenchs indicate fall in surface paving for drainage.
Dimensions ext stancheons as marked indicate the depths to the top of stanchean foundation concrete.
Heating & Electrical engineers to supply particulars as to holes to be left in walls & floor –
☐ color shews pipe ducts:
☐ color shews air ducts;
☐ color shews extract shafts
BUILDING LINE
PIPE DUCT
AIR DUCT
MOTOR RM
A
B
C
5
BUILDING LINE

CURRENT ARCHITECTURE (SERIES II). XXIX.—RE

HEATING AND VENTILAT

HENRY TANNER, F.R.I.B.A., F. J. WILL



AE HOTEL, PICCADILLY CIRCUS, LONDON: PLAN OF
EMENTS IN SUB-BASEMENT.
LATE W. J. ANCELL, JOINT ARCHITECTS.

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THE PLATES.

Storey's End, Cambridge.

)R this house it was decided that local bricks and tiles should be used, partly for reasons of economy, and partly from the desire to make use e materials nearest to hand, in spite of the fact the local bricks were of a pale straw colour, and of mely hard, uninteresting texture; a fact which led to their being almost entirely superseded acing purposes by imported red bricks. It was d that experiment might produce something not ether unpleasing. After a conference between rchitect and the foreman of Mr. William Saint's field, experiments were started. The first and d attempts were both failures. But at the third pt a very pleasant rough-textured brick was uced. The colours of the bricks varied consider- a warm stone-colour being the average, with tions from dull yellow to mauve. There were also of a curious Indian red colour, which have come ery dark in the photographs. For the quoins and ings silver-grey bricks from Messrs. S. and E. er, of Reading, were used, and for the chimneys a -coloured brick from Messrs. Collier, Limited, of 's Tey. The tiles, also supplied by Mr. Saint, is case after experiments made for another tect, are machine-made, sanded by hand between achine moulding and the burning. They vary in r in the same way as the bricks, but in this case ndian red is predominant. With the exception of ntroduction of the silver-grey bricks, almost the departure from the strictest economy was the what luxurious gallery on the first floor—a feature occupies less unnecessary room than at first ars. The plastering was finished with a wood and distempered; all the passages and the stair- being white. The contractors were Messrs. son and Lofts. The locks and door furniture supplied by Mr. James Gibbons, the sanitary fittings by Messrs. Shanks, the grates by Messrs. Bratt, Colbran and Co., the iron casements and lead glazing by the Crittall Manufacturing Company, and the electric light installation carried out by the Cambridge Electric Supply Company. Mr. A. H. Moberly, M.A., A.R.I.B.A., of London, W.C., was the architect.

Tablet to William Penn.

This is a noteworthy example of a simple tablet displaying good lettering, with just sufficient enrichment to avoid any appearance of baldness. William Penn was baptised in the Church of All Hallows, Barking, and it is in memory of that event that the tablet was erected by Pennsylvanians, who entrusted the design to Messrs. McKim, Mead, and White.

Clydebank Public Library.

This library has been built with funds supplied by Dr. Carnegie, who presented the burgh with £10,000 towards the erection of the building. The façade presents a dignified appearance towards the main thoroughfare of the town. It is carried out in Black Pasture stone. Accommodation is provided for 24,000 volumes in the lending library department. Mr. A. McInnes Gardner, I.A., of Glasgow, and Mr. Robert Whyte, of Clydebank, were the joint architects for the building.

Staircase Panel.

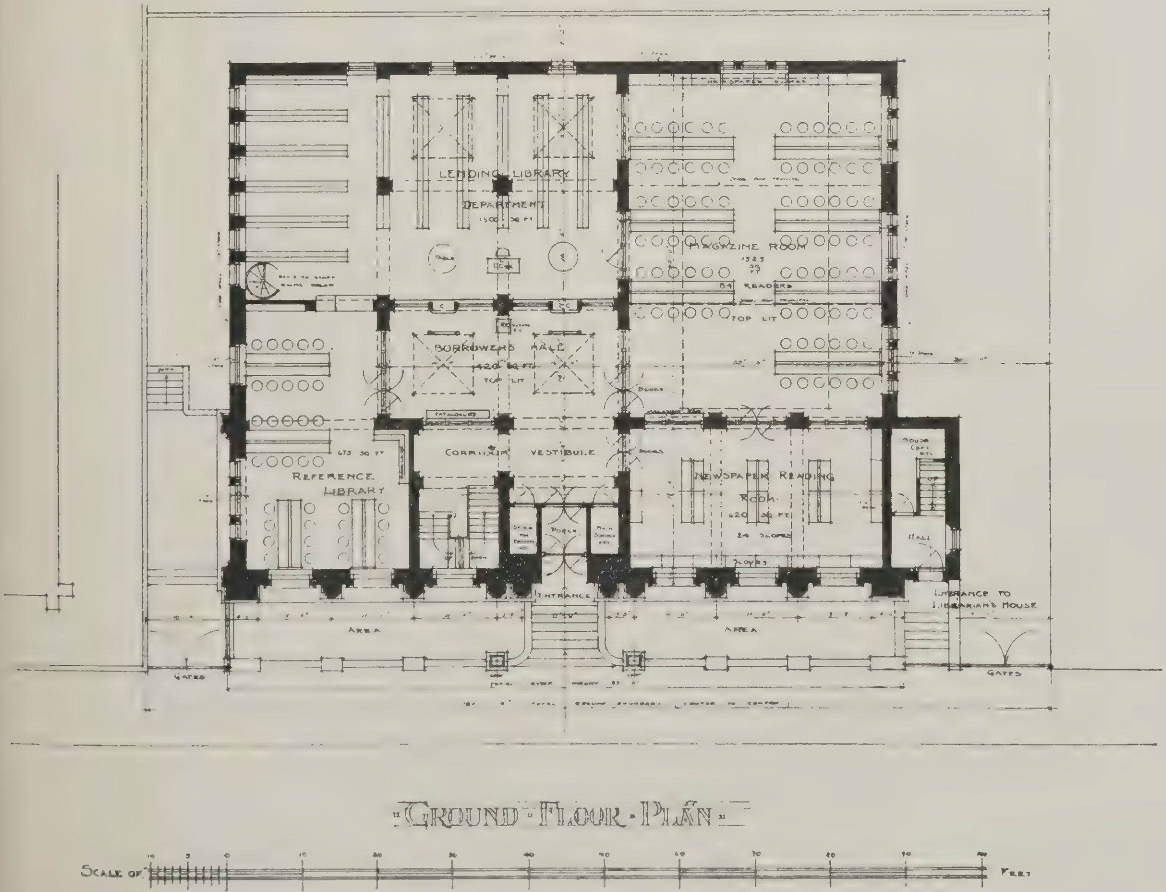
This is part of a balustrade of carved oak from an English staircase of the late seventeenth century. The panel measures 2 ft. 7 in. by 2 ft. 1 in.

Manchester Old Town Hall Plans.

These are for study in connection with the elevations of the building already published.

Plan of Heating and Ventilating Arrangements, Regent Palace Hotel, London.

Particulars of this interesting scheme will be found in the article on page 307.



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THE RECONSTRUCTION OF BELGIUM—III.

[*SPECIALLY CONTRIBUTED.*]

III.—*Material Supplies.*

THE supply of material is a matter of considerable complexity. In dealing with articles of merchandise in general, it is sufficient to say that the rules, principles, and usages of ordinary commercial or trading transactions are mainly concerned with the supply of commodities that are sound, honest, and merchantable; but while subject to these general principles, the materials of construction are in a category of their own.

Many materials require no further denomination than that implied in the statement of their place of origin, which connotes recognised type, qualities, and dimensions—for example, in Belgium, Boom bricks, La Campine bricks, Tournai and Namur limes.

There are many materials which, apart from their particular denomination, have to be in relation to particular requirements—as, for example, resistance to compression or tension, hardness, fineness of grain, purity of the constituent elements, as in iron, steel, cement, piping, isolation materials, colours, etc., etc.

There are also materials which must be "purpose-made," to meet the special requirements of any particular job—as, for example, girders and beams with respect to their loading, columns with regard to the weight they are to carry, piles in relation to their particular service, and so forth.

For the information of English merchants and manufacturers it may be mentioned that the greater part of materials currently used in construction are described in the general conditions and specifications which govern public works undertakings in Belgium, that the specifications special to each work have reference to those general conditions, and that for the most part the conditions and specifications of works for private individuals also have reference to the said general public works conditions.

It is necessary that these general conditions should be carefully studied by British manufacturers and merchants, in order that they may become thoroughly conversant with the requirements as to weight, dimensions, colour, porosity, and general properties of the materials to be supplied.

The general conditions in use are: (1) Those of the Ministère des Chemins de Fer, Postes, et Télégraphes, and of the Ministère de l'Agriculture et des Travaux Publics. (2) Those of the Ministère de la Guerre; (3) those of the Chemins de Fer Vicinaux; (4) those of various Belgian provinces; (5) those of various large towns. (4) and (5) are very similar, both being modelled on the conditions imposed by the State; nevertheless, there are certain appreciable differences that are familiar to Belgian contractors and their merchants, who in their negotiations and correspondence frequently make specific reference to materials in accordance with the conditions imposed by the State, or by the Ministry of War, or by the provincial or city authorities.

These documents regulate also the conditions of trading, with which manufacturers and merchants should certainly become conversant. The contractor in fact stipulates invariably in his enquiries for prices and in his acceptances thereof that "the goods shall comply with the clauses and conditions of one of these specifications," or, "in accordance with the provisions and subject to the approval specified in these general conditions," or, "to the entire satisfaction of the functionary directing the works," or, "in accordance with the clauses and conditions of one of the specifications for the furnishing of . . . ."

When large quantities of goods are required, and the delivery is to extend over a considerable period of time, it is usual to draw up a contract as bet vendor and purchaser, and this always contain following clause: "The general conditions (c general) and the special conditions (cahier sp governing the work form an integral part of present contract, in suchwise that the vendor himself in the place of the contractor (se met au et place de l'entrepreneur) for everything rel (pour tout ce qui a trait) to the materials sold a be delivered."

Clauses of this sort are so customary in Bel that, in virtue of the general principles of Be common law, it is not necessary that they shou expressly stipulated, but they must be neverth included in contracts as a matter of course. A examples will show the importance of these ge principles of law. One contractor asks quotatio materials for the construction of a railway st another for those to be used in the erection of racks, a third has to build a town school, a f to construct a country road. The merchan furnishing the required prices, is aware of destination of the materials, and would hav excuse for pretending ignorance that the mat for these works must satisfy the conditions re tively laid down in the schedules of the va authorities indicated by the nature of the w those respectively responsible for railway barr school, and roadway administration. In su case any plea of ignorance would be a brea good faith.

We must again emphasise the necessit adhering strictly to the descriptions given in authoritative schedules. The slightest depa from these prescriptions may give occasio rejection or for disagreement. Some charact cases may be cited. A product that was i respects perfect, except in a difference of dime that would have no effect whatever on the work rejected. A product that was actually super that described in the official specification was carded, although it was offered without increa price. A product similar or equivalent to described has been rejected, and so on *ad infin* The goods must be exactly in accordance wit specification.

Nor must it be forgotten that in the case of works the employers are an administration; a administration is impersonal. It is, however, often arrogant, and sometimes unreasonable. case of difficulties arising, the functionary in c of the work reports to his chiefs, and propose solution that his knowledge, his experience responsibility and his conscience dictate to hi the course that is most consistent with justic equity, and as doing the least injury to the r tive interests of the corporation and of the tractor. But his chiefs, who are not on the who are not in touch with the work, who ha precise notice of the real difficulty, cannot a the proposed solution, and then follows rej pure and simple, with the disagreeable consequ of disallowed charges, pecuniary loss, and dep tion of the goods; and the vendor is very fort if he comes off without being penalised for the to which the dispute has given rise, for that common result of such adventures.

One thing that it is important to know is t Government or public works the decision of a ance or refusal of materials cannot be submit the revision of the Belgian courts of law. I constitutional principle that judicial and ad e powers shall remain separate and inde- ent.

tish merchants and manufacturers who wish pture the Belgian markets from the Germans not rely on the quality, appearance, and size eir products; they must, as the Germans have before them, make their goods in everv respect rmable to the exigencies of the Belgian official riptions in the aforementioned "cahiers des res." Everv trader who seeks to extend his ess or place his products in a country in which rto they have not been introduced, must neces- conform to the tastes, whims, usages, and ods of that country. This adoption should no serious difficulty. British manufacturers long known how to meet the requirements of e, Spain, Italy, South America, the Indies, and a. They should find it equally easy to meet pecial requirements of Belgium.

insist strongly on immediate preparation for work, for the reconstruction of Belgium will t of no delay. It is necessary, at the outset, fore, to supply to Belgians, whether con- ors, architects, engineers, public functionaries, roprietors, goods similar to those they are iar with the use of.

and by, when British manufacturers and rs have obtained a firm foothold in the Belgian et, they will be in a better position to propose ties and improvements. Certain classes of h manufactures are of incontestable and over- ning superiority, and occasionally they offer a derable advantage in the matter of price. Sani- and hygienic installations and hoisting and ing machinery may be cited as instances. In direction the Germans have attempted imita- but their essays have not been happy. They put forth trashy wares without any appreciable tion in price.

have excellent reasons for referring to sani- installations. A thing that has struck us is in spite of the vast population of London, with onsequent enormous number of drains, there that vast city none of the pestilential and in- rtable odours that are too often prevalent in cite onlv two Belgian cities—Ghent and Ant- . We believe we are not mistaken in attributing that blessed immunity to the perfect sanitary arrangement for which London is distinguished beyond all large cities.

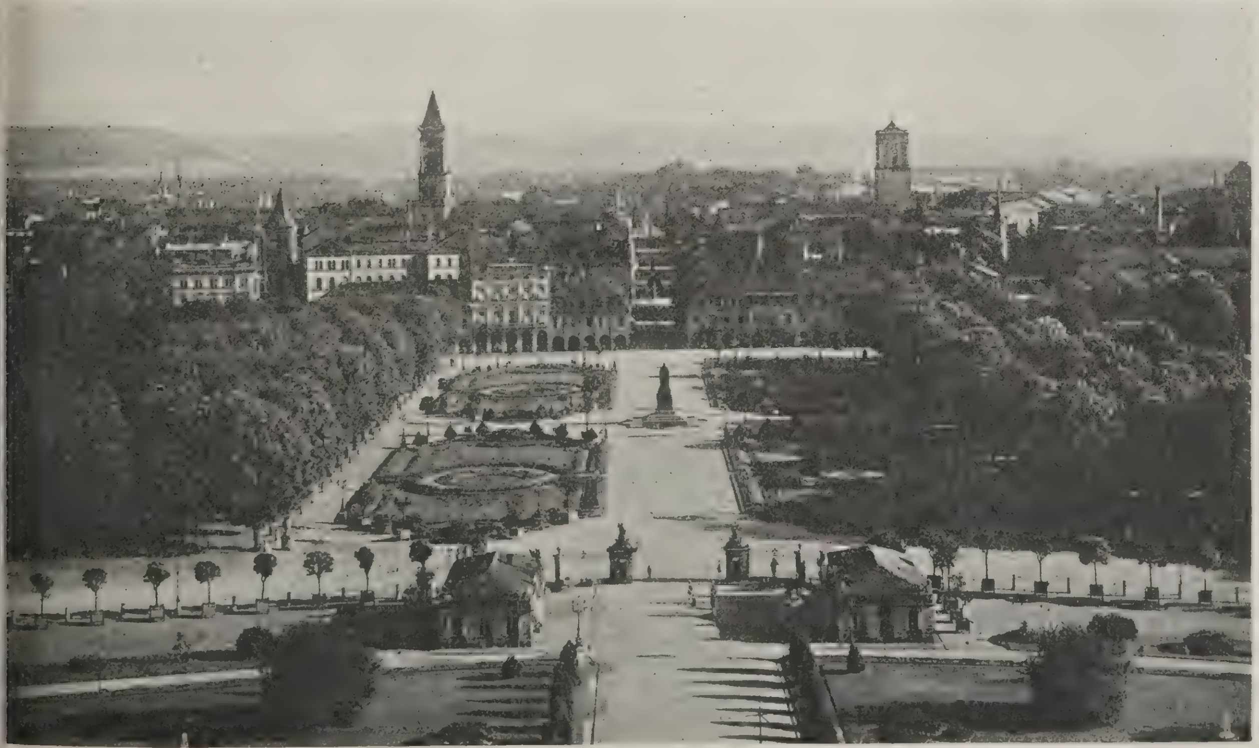
(*To be continued.*)

THE SCHLOSSPLATZ, KARLSRUHE.

LAST week, apropos of the successful air-raid on Karlsruhe, we reproduced the original plan of the town. Complementary to this, we now show a view of the Schlossplatz. Originally a bare parade-ground, the *place* has not been improved, but has lost much in harmoniousness and dignity by its plantation with trees and formal grass-plots. On the north side of the palace, radiating lines are repeated as allées through the forest all round the circle. The effect of this planning is that the central tower of the schloss forms the terminal feature of the series of radiating roads, and the coming and going of the Grand Duke, signalled by the raising or lowering of his flag at the top of the tower, is not only communicated in a few minutes to the entire town, but to the whole of the country for miles round.

A main road runs from east to west, linking together all the radial roads and forming a secondary axis line at right angles to the main axis, which runs north and south through the schloss and the market-place, and, continuing, cuts the Rondeplatz at a point where two other main diagonals branch off, connecting with the Kaiserstrasse on the west; while on the east the diagonal loses itself in a bit of the old town which was allowed to grow up on somewhat haphazard lines where the dwellings of the poor people were built, and where others were allowed to go who, for one reason or another, would not or could not fall in with the building regulations which were laid down with a view to preserving the harmony of the more important parts of the town.

Within the fan-shaped place, to which reference was made last week, and north of the Kaiserstrasse, the plan has remained much as originally laid out, and sufficient of the original buildings exist to give a definite character to the town, and to preserve the general effect first secured. The original palace was largely built of wood. The present erection was begun about 1750.



KARLSRUHE: THE SCHLOSSPLATZ.

WHICH IS THE CHEAPEST WALL COVERING?

BY ARTHUR SEYMOUR JENNINGS, F.I.B.D.

Leaving out of consideration cheap cottage property, where the very commonest wall-papers would probably be used, the question sometimes arises as to which is, in the end, the cheapest wall covering that can be used. The answer may be given at once that four coats of oil paint may prove cheapest in the long run because it will last almost indefinitely, say ten or twenty years with fair wear, although the plaster may in course of time become broken, and then repairs will be necessary that will wholly upset all calculations. On a basis of ten years it is not the cheapest wall covering, as is shown by the table below.

But ordinary oil paint has two objections—first, the glossy surface does not form a good background for pictures, while it renders conspicuous any inequalities in the wall. A dull or matt surface is always much more pleasing than a glossy one. Of course, the oil paint can be flatted, but this will mean renewing every three or four years, so will not be economical.

To illustrate the subject on a practical basis, I will take the case of a room measuring about 15 ft. by 15 ft. and 11 ft. high. Say, in round figures, that the wall-space measures 66 superficial yards. This may be decorated with (a) ordinary distemper, (b) wall-paper at, say, 2s. 6d. a piece, (c) washable distemper or water-paint, (d) flat wall-finish, (e) four coats of oil-paint, (f) four coats of oil-paint and one of flatting, and (g) flat or glossy enamel.

Ordinary distemper is almost out of the question, because it is certain to get dirty very soon and to require renewing, but we will suppose it is used and is renewed every two years.

Wall-paper is, of course, a favourite because of the pattern. Its life will naturally depend upon whether the paper is light or dark, and the colour delicate or otherwise. We can only take averages, because everything will depend upon the use to which a room is put. If there are young children, the probability is that it will need renovation after two years or perhaps less. An average time would certainly not exceed five years, and might be considerably less.

Washable distemper possesses the advantage of being obtainable in such a large variety of colours, and of giving a matt surface which is more or less washable. I say "more or less" because some of the goods of this character are very deficient in the washable quality. Most of them can, however, be safely washed down with a sponge within a month or two of application. Taking all things into consideration, we can assign a little longer "life" to washable distempers than to wallpaper, say seven years.

Flat wall-finish is really washable, and a period of ten years would not be too much to give as the time it will last. Then, it possesses the great advantage of yielding a beautifully solid flat surface, which in appearance is very like that of flat enamels. It is also very easily applied and does not require stippling.

Oil-paint has already been referred to, and flat enamel may be dismissed with the remark that it is on an equality with flat wall-finish, but costs more.

It now remains to discover the cost of decorating 66 superficial yards in the several different methods mentioned. Taking the prices which are current in ordinary country towns, we have the following, but it should be remarked in passing that the prices for London and large cities would at the present time be from 10 to 25 per cent. higher.

Ordinary distemper on new work may be taken at 3d. for two coats, total cost of 66 square yards being 16s. 8d. If wallpaper is used at 2s. 6d. a piece, sixteen pieces will be required, which will cost for the paper £2 and for the hanging 1s. a piece, making a total of £2 16s. Washable distemper or water paint will cost two coats 4½d. a yard for ordinary colours, costing for the room £1 5s. Flat wallfinsh may be taken at 5d., although that is rather a high estimate; the cost in that case will be £1 7s. 3d. Four coats of oil paint may be taken at 1s. a yard, giving a total of £3 6s. 8d., while if the last coat is flatted there will be an additional cost of 1½d. per yard, or a total of £3 15s. Flat enamels with the necessary undercoats of paint may be taken at 1s. 2d. a square yard, the total in this case being £3 17s. 0d. The above estimates are based on the prices which a painter would charge under ordinary circumstances. For the highest class work these prices, as already mentioned, must be considered low.

And now we have to consider the subject not from the painter's point of view, but from that of the owner, who must regard the subject from an entirely different standpoint, and who will be guided not by the first cost but by the length of time each different treatment will last.

The simplest way to make a comparison is to take the cost of the respective finishes over a period of ten years. The figures work out as follows:

Comparative Table Showing Cost of Different Wall Coverings.

Material.	Cost per yard		Cost of each Application, Material and Labour.			No. of times renewed in 10 years.	Total cost for 10 years.			Average cost per Annum.	
	s.	d.	£	s.	d.		£	s.	d.	s.	d.
Ordinary Distemper Not Washable		3		16	6	5	4	2	6	8	3
Wallpaper at 2/6 a piece	—		2	16	0	2	5	12	0	11	2
Washable Distemper		4½	1	4	9	1½	1	17	0½	3	8½*
Flat Wall Finish		5	1	7	6	1	1	7	3	2	6
4 Coats Oil Paint	1	0	3	6	0	1	3	6	0	6	7
do. and Flatting	1	1½	3	14	3	1	3	14	·3	7	5
Flat or Glossy Enamel	1	2	3	17	0	1	3	17	0	7	9

* This is calculated at 1½ as at the end of 10 years it will not require repainting for another 3 or 4 years.

A SALVATION ARMY MEMORIAL HALL.

A memorial to the late General Booth which has been erected in King Edward Street, Nottingham, will be opened on July 12 by the Duke of Portland. The William Booth Memorial Hall, which has been erected at a cost of about £6,000, is designed to serve as the headquarters of Nottingham No. 1 Company, which has hitherto been without a permanent home. The hall has been erected by Mr. J. Wright, of Nottingham, to the plans of Mr. O. Archer, the "Army's" headquarters architect. The site was a difficult one to deal with, from the architectural point of view, owing to its shape, which explains why the side of the building faces the main thoroughfare—King Edward Street—and the front up St. Ann's Well Road. A series of stone columns, together with a heavy stone cornice—with dentil course—and a stone plinth stand out in relief here. The design is an original one so far as "Army" build
are concerned, and is reminiscent ra
of a library than of a "barracks."
red brick and Ancaster stone, the r
entrance is semi-circular. On either
of the massive door are a couple of s
columns. The whole is surmounted
short square tower in red brick, with s
dressings.

The bulk of the space is devoted to
halls. The main one, reached throu
spacious crush lobby, is about 70 ft.
by 48 ft. wide, and affords accommod
for a thousand worshippers. At the
end a large platform on the orche
principle seats the officers, songsters,
band. Immediately in front of the
form the penitent form is artistically r
in. The large gallery at the rear of
hall is on the cantilever principle, the
of columns being thus obviated. At
rear of this hall is the young people's
—about 40 ft. by 34 ft.—providing acc
modation for 500 children. This hall
be converted into eight classrooms by
employment of portable partitions.
entrance in this case is from King Edv
Street. Other apartments are a b
room, an officers' room, and a classr
The halls are well lighted and ventil
the heating being by low pressure, and
artificial illuminant electric lamps of
candle-power. The halls are decor
with plaster, the steel roof having pl
enrichments.

LONDON COUNTY COUNC ECONOMIES.

In accordance with the decision of
Treasury that capital expenditure by p
bodies must be limited during the w
essential works, the London Co
Council Finance Committee propos
large reduction in the estimates tentat
approved in March last. They re
mend that the provision of £3,668,69
1915-16 should be reduced to £1,631
and that the estimate of £1,425,20
respect of the six months to Septembe
1916, should be altered to £450
Similarly, they suggest that the amc
set aside for loans during these per
namely, £567,000 and £316,000, shou
reduced to £331,000 and £230,500 re
tively.

The accounts for 1914-15 of the Cou
working-class dwellings show a net
plus on all dwellings and estates in co
of development of £14,393, as comp
with £15,877 for 1913-14 and £7,29
1912-13. The small decrease as comp
with 1913-14 is due chiefly to the inc
in rates and to allowance to officers
employees serving with the Forces. It
some extent counterbalanced by impr
lettings generally during the year, the
loss due to empties having been £5,95
2.59 per cent. of a total gross incon
£230,036. This percentage compares
3,23 and 5.20 for the two previous yea

Up to March 31 last the total ca
expenditure of the Council on its dwel
and estates amounted to £3,056,646,
for the clearance of insanitary areas
aggregate outlay stood at £2,664,57
which £101,417 was expended in 191
almost wholly in respect of the Ta
Street scheme. The total financial r
from the commencement of the hou
operations to March 31 is a surplu
dwellings of £63,378 and a defic
charged on the special county ra
respect of estates in course of develop
of £82,783. The net resultant charg
the rates for the whole of the opera
has been £18,154.

QUIRIES ANSWERED.

aries, Swimming Baths, Cinemas

L. J. (Dublin) writes: "Would you good as to give me the rules which n the planning and setting out of the ving. The circumstances are not cted in any respect as regards space, y, light, and air: (1) What number of re feet should be given in the news- r room of a public library per person? hat number of square feet should be in ditto in book room? (3) What er of square feet of water surface in blic swimming bath should be given erson? (4) Is there any standard rule fixes the rise in the ground floor of atre or cinema theatre? I think this in a well-planned theatre is not uni- , but is quicker further back from stage. I have noticed in a cinema re where the floor rises towards the for a number of seats back from it good results, and I think I have ed the same in some new music .

An answer in the terms invited ot be given. The area depends on the er and class of newspapers to be exhi- . Double newspaper slopes are lly about 2 ft. 6 in. deep, and from 6 in. to 4 ft. run of slope is allowed each paper, while the gangways een double stands should be about f 6 in. wide. The best arrangement in ice is found to be wall slopes below, ows for big papers, and double read- lopes (at which readers can be seated) maller periodicals in centre of room. square feet per reader is not unusual merica, but from 24 to 25 sq. ft. is dered ample in this country. (2) The -room of a public library also depends he storage required rather than the er of users. Assuming that the c is to be admitted (and not the staff ly), 5 ft. gangways should be pro- l between the cases, which should be d to 12 ft. in length, with 3 ft. cross ways. 7 ft. 8 in. is the maximum t for reaching without ladders. If alone uses book-room 3 ft. gangways be sufficient. Querist should consult blic Libraries" by A. L. Champneys, shed by B. T. Batsford, 94, High orn. (3) A first-class public swim- bath should be 100 ft .long by 40 ft. that being the size and shape which rms most conveniently to the regula- under which swimming contests are In practice this sized pond will space round the gangways for dress- oxes to accommodate from sixty to ity swimmers. Consult "Public s and Washhouses," by A. W. S. , published by B. T. Batsford. (4) rise to be given to a pitched floor in to enable spectators to have a clear of screen, stage, lecturer, or demonstration table is determined by trial sections. The principle is that upon which the seating in lecture theatres has commonly been set out, and is explained in several standard works; it is sometimes called the homacoustic curve. Briefly, the position of the object to be viewed and the spacing of the seating being decided, sight lines are drawn from the average position of the eyes in each row to the object, each successive row being elevated to throw the line clear of the heads of the line in front, resulting in a progressively greater elevation as the distance from object recedes; and a steady curve. In a lecture theatre, where a view of the surface of the demonstration table is essential and it is accordingly below all the spectators, a very steep rise results, but with the elevation of the object, as in a cinema screen, a flatter pitch is sufficient, and it is even possible to reduce this by the reverse curve nearer the object which querist has noticed. If the seating is curved on plan, so that the actual seats are staggered, the pitch can be still further flattened without bad results if a wide field of view is not necessary, as each spectator sees between the heads of the row in front. G.

Cracks in Walls.

X. Y. Z. writes: "The 14-in. external walls, built in lime mortar (1 to 3) and covered with cement roughcast, of a house in an exposed position in the country erected some six years ago have become very much cracked, especially those facing the south-west. The walls are built of stocks or grizzles and faced externally with keyed Flettons, to which the roughcast has adhered quite well. At first sight it looks as though the cracks were caused by settlements in the foundations, but there are some evidences that this is not so, and the builder claims that the mortar itself, owing to the saturation of the walls with rain before the roughcast was applied, has expanded and caused the cracks. Is it at all likely that the builder's theory is correct, or is there anything in the nature of the Fletton bricks, or their combination with cement roughcast, which might account for the trouble?"

—It is difficult to reply without an inspection of the work, but confining the answer entirely to the questions asked, it appears most improbable that saturation of the walls six years ago before the roughcast was applied should now result in the expansion of the mortar and serious cracks in the walls. As to the suggestion that something in the nature of the Fletton bricks may be responsible, many bricks of this class develop very powerful crystalline exudations in conjunction with cement and moisture, and this condition continues (to my knowledge) very long after the first appearance of the efflorescence during setting. It has been known to push off plaster, paint, or distemper repeatedly, but I have never known a case where it cracked the wall. G.

Temporary Structures for Military Purposes.

E. H. A. (London, S.W.) writes: "Can you recommend an inexpensive book dealing with temporary structures required for military purposes?"

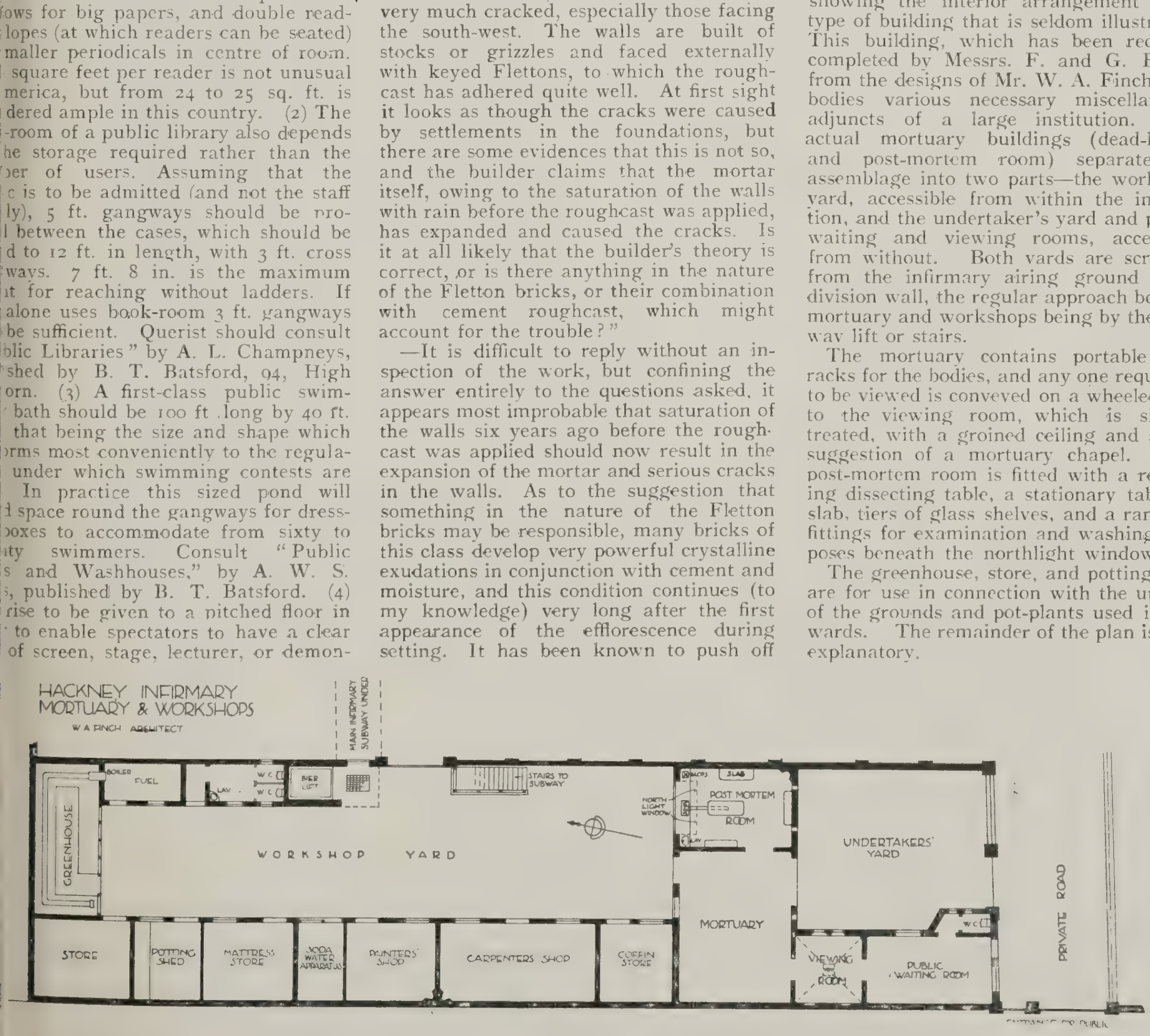
—We are unacquainted with any book on the subject. Structures of the kind must conform to War Office requirements specifically laid down in each case. On the general subject of military buildings there is an interesting chapter in "Edifices Publics," by Emile Guillot (Paris: H. Dunod et E. Pinat, 47 et 49, Quai des Grands-Augustins), in which views and plans of typical barracks are given, and the sanitary arrangements are described and illustrated. It need hardly be said that the information in this chapter is not applicable in detail to English requirements. General principles, however, are usefully summarised, and the text of the Ministerial circular of May 30, 1907, shows that the French fully realise the importance of rendering military buildings sightly and comfortable as well as hygienic.

AN INFIRMARY MORTUARY.

The accompanying plan of the new infirmary mortuary which has been erected for the Hackney Union is interesting as showing the interior arrangement of a type of building that is seldom illustrated. This building, which has been recently completed by Messrs. F. and G. Foster from the designs of Mr. W. A. Finch, embodies various necessary miscellaneous adjuncts of a large institution. The actual mortuary buildings (dead-house and post-mortem room) separate the assemblage into two parts—the workshop yard, accessible from within the institution, and the undertaker's yard and public waiting and viewing rooms, accessible from without. Both yards are screened from the infirmary airing ground by a division wall, the regular approach both to mortuary and workshops being by the subway lift or stairs.

The mortuary contains portable iron racks for the bodies, and any one requiring to be viewed is conveyed on a wheeled bier to the viewing room, which is simply treated, with a groined ceiling and slight suggestion of a mortuary chapel. The post-mortem room is fitted with a revolving dissecting table, a stationary table or slab, tiers of glass shelves, and a range of fittings for examination and washing purposes beneath the northlight window.

The greenhouse, store, and potting shed are for use in connection with the upkeep of the grounds and pot-plants used in the wards. The remainder of the plan is self-explanatory.



NEW INFIRMARY MORTUARY AND WORKSHOPS. HACKNEY, LONDON. W. A. FINCH, ARCHITECT.

NEWS ITEMS.

Hospital in Ruskin Park.

It is probable that a portion of Ruskin Park, Herne Hill, may be required for use in connection with the Fourth London General Military Hospital.

Sanatorium for Monmouthshire.

Mr. Hanbury, a Monmouthshire landowner, has given a site of seven acres for the erection of a tuberculosis sanatorium in connection with the King Edward Memorial.

The Quantity Surveyors' Association (Incorporated).

Mr. Henry Vale, F.S.I. (Wolverhampton) has been elected president of this association for the ensuing year, and Messrs. F. W. Harrison, F.S.I., and Arthur G. Cross, F.S.I., vice-presidents.

Westminster Paving Works.

Paving works involving an outlay of £28,874 were sanctioned by the Westminster City Council on June 24, it being stated that the work had been reduced to the minimum consistent with public safety and economy.

Surrey County Hall Extension Postponed.

The Standing Joint Committee of Surrey County Council have postponed the consideration of the matter of proceeding with the County Hall Extension till the termination of the war, regard being had to the undesirability of incurring capital expense at the present time, and the possible refusal of the Local Government Board to sanction a loan. The cost of the present building was stated to be £41,964, and the estimated cost of the extension was £50,000.

Electrical Trades Union and the National Conciliation Board for the Building Trades.

At a quarterly meeting of the National Conciliation Board held in London on June 14, it was resolved: "That the Electrical Trades Union be admitted to the membership of the Conciliation Board wherever working-rule agreements exist between branches of the National Federation of Building Trades Employers and the Electrical Trade Union, subject to the approval of the parties at present affiliated to the scheme."

Building Activity at Batley.

Plans have been approved at Batley General Works Committee for an addition to Bulrush Mill offices for Messrs. R. Talbot and Sons; a drying room at Spring Mill, Carlinghow Lane, for Messrs. F. Townend and Sons, Ltd.; a cooling tower at New Ing Mills for Messrs. J. Blackburn and Co.; house and shop at Halifax Road, Staincliffe, for Mr. Sam Smith; a detached villa at Track Road for Mr. A. E. Hemingway; and two semi-detached villas at White Lee Road for Messrs. A. and F. Jowett.

School Building in London.

The London Education Committee have decided to reduce the capital estimates passed in March last from £600,000 to £480,000 for the year ending March 31 next, and to reduce the sum allocated for the six months ending September 30, 1916, from £414,810 to £57,675. The sub-committee which recommended this course reported that they had, in reviewing the estimates, borne carefully in mind the course suggested by the Prime Minister in the House of Commons on May 13, when he said: "Running contracts could be allowed to continue, subject to whatever can be done in the way of slowing down, and the new contracts should not be continued or proceeded with." Mr. Warburg also explained that they had put £8,000 into the estimates to enable the architect to prepare plans for one year's building work at the end of the war. The revised estimates were unanimously approved.

Preston's Proposed Sanatorium.

The Preston Health Committee report that a letter has been received from the Local Government Board stating that the Treasury has consented to the payment to the Town Council of a capital grant of £1,127 in aid of the purchase of land at Ashley Hall Farm as a site for a combined sanatorium and hospital for the treatment of tuberculosis. They also report that two maternity centres have been secured by the engagement of rooms at Deepdale Mill Street School and Fylde Road School, and that the medical officer of health has been authorised to arrange for the opening of the centres.

Devon and Exeter Architectural Society.

At a committee meeting of the Plymouth District Branch of the Devon and Exeter Architectural Society, held at the Athenæum, the death of Sergt. Charles H. Phillips, of the Expeditionary Force, was reported, he being the first member of this society to lose his life in the war. A letter of condolence from the President has been forwarded to his relatives. With regard to municipal building work in contemplation, the hope was expressed that the Council would engage the services of architects practising within the borough, particularly as there existed a general dearth of employment in the profession, although a large number of the local members had joined the forces.

Selfridge's Subway.

An application by Mr. Selfridge for leave to construct a subway between his main building on the north side of Oxford Street and new premises on the south side has been granted, after some opposition, by the Marylebone Borough Council. Leave to construct the subway was refused when application was first made some months ago. When the project was raised again at the council meeting it was urged on Mr. Selfridge's behalf that the subway, in view of the volume of fast traffic passing along Oxford Street, would be of great benefit, especially as it was intended that the subway should be available for public use, and not only for the convenience of Messrs. Selfridge's customers.

Builders Earn a £150 Bonus.

At the Base Hospital, Leicester, the Mayor (Alderman J. North) presented the employees of Messrs. Henry Herbert and Sons with £150, the bonus earned by them during the erection of new buildings, necessary for the housing of the wounded. The bonus was paid at the rate of £10 per day on the completion of the buildings before the contract time, which was ten weeks. The erections were completed in eight weeks, and Messrs. Herbert decided that the money should be paid to the workers. The Mayor spoke in high terms of the men's earnestness in getting the work done, and Mr. R. Dalgliesh expressed thanks on behalf of the Leicestershire Territorial Association. Those present included Mr. S. P. Pick, F.R.I.B.A., the architect.

Rosyth Housing Schemes.

At a meeting held on June 14th the Scottish National Housing Company (Limited) appointed Messrs. Greig and Fairbairn, Edinburgh, to act as archite for a first lot of fifty houses, to be p ceeded with immediately. Messrs. Gr and Fairbairn commenced business gether in 1903, and since then have carr out various important works, some which they gained in open competiti These include public libraries at Moth well and Whitehaven, and a large numl of churches in the Highlands for United Free Church of Scotland indiv ually. Mr. Greig acted as princi teacher of architecture in the School Applied Art and Art College in Edinbur from 1903 until 1908. Mr. Walter Fa bairn gained the "Tite Prize" in 190 an open scholarship for design awar annually by the Royal Institute of Brit Architects. He has also been teacher architecture in Lauder Technical Schc Dunfermline, during the past ten years

The War Bonus Question.

At the quarterly meeting of the Natio Board of Conciliation for the Build Trades, held on June 14, at Koh-i-N House, Kingsway, London, the follow resolution was passed: "That this boa recognising the difficult position in wh both employers and workmen in the bui ing trade find themselves in conseque of the high cost of materials on contra taken before the war, and of the high c of living in consequence of the war, reco mends that the National Federation Building Trades Employers take into c sideration the position with a view, if p sible, of employers granting some spe assistance, where circumstances may j tify it, to their workmen before wir comes in, and that the reply of the Fe ration be considered at a special meet of this board to be held in Yorkshire July 29." The operatives have expres a wish to send a deputation to meeting.

COMPETITIONS.

Municipal Buildings, Stepney.

An exhibition of the designs submit in this competition is being held this w —from Tuesday, June 29, to Frid July 2, between the hours of 2 p.m. 8 p.m., at the Whitechapel Art Gall (Station, Aldgate East). Result on p.

Business Premises, Plymouth.

Architects practising in the United Ki dom are invited by the Committee of Plymouth Mutual Co-operative and Inc trial Society, Ltd., to submit competi designs for new business premises to erected in Frankfort Street, Plymouth, a site containing about 24,000 sq. Premiums of £75, £50, and £25 are offe for designs placed second, third, fourth. Mr. Paul Waterhouse, M. F.R.I.B.A., is the assessor. Particu (5s. deposit, returnable) from the Gen Secretary, Plymouth Mutual Co-opera and Industrial Society, Ltd., 15 to Frankfort Street, Plymouth.

Housing, Whitehaven.

Mr. W. J. Swain, of York, archit and Mr. E. E. Stiven, the borough veyor, Whitehaven, the assessors in competition, have announced the follow awards: 1, Mr. J. S. Stout, Whitehav 2, Mr. H. Lord, Manchester; 3, Mes Unwin and Holland, Wigan. It will remembered that the corporation inv designs for the laying out of a site the erection of houses; the author of design placed first to be employed as ar tect, or otherwise to receive thirty guir premium; the second premium b twenty guineas, and the third ten guin

GINEERING PLANT AT THE REGENT PALACE HOTEL.

ndon's latest and largest hotel—the ent Palace Hotel—erected on a trian- r site on the north side of Piccadilly us from designs by Messrs. Henry ner, F.R.I.B.A., W. J. Wills, and the W. J. Ancell, is especially noteworthy its heating, ventilating, and general neering plant, which was designed by installed under the direction of Mr. I. Barker, B.A., B.Sc., Wh.Sc., con- ng engineer and professor in heating ventilating engineering at the London ersity. The electrical equipment, ing, and power, wiring etc., was ed out by the hotel company's own under the direction of the chief elec- l engineer, Mr. Cushion. A plan ing the general arrangement is given double-page plate in this issue.

Heating.

e heating of the hotel is effected y by hot-water radiators, partly by um steam, and partly by electric ers. The whole of the reception- s on the basement, mezzanine, and nd floor are supplied with low-pressure water radiators from duplicate steam ers fixed in the sub-basement. The lation is by natural gravity, accele- l when necessary by electrically- n pumps. The arrangement is such the temperature of the water circulat- to each of the principal reception- s is under independent control.

e 1,028 bedrooms are warmed by rical heaters, and the bedroom dors by radiators on the vacuum-steam iple, each corridor being under sepa- control and the whole service ted from the sub-basement.

Ventilation.

e ventilation of the principal recep- rooms is on what is known as the anced system." Fresh cooled air is lied by two large general fans. Each ipal room has its own independent ct fan. Fresh air is thus forced in vitiated air is simultaneously with- n from the room in any desired quan- Air is admitted into the hotel in a settling chamber fixed near the er of Air Street and Glasshouse t. In this chamber all the heavier and other impurities are allowed to . The air next passes through a washer (shown by the accompanying ration). where it is thoroughly sed of dust and other impurities, d, and humidified. In the hot days mmer provision is made for cooling ir through a considerable range by gerator, cold water, or ice, as required. ld weather it is suitably tempered by ng over a battery of warm pipes. From ir washer it is led through two centri- l fans and driven through under- nd ducts to all parts of the building. ducts are so arranged that either fan be employed for the supply to the e building, thus minimising the risk of ed air. There are two ducts for each , one for warm and the other for cold Warmed or cooled air can be admitted ny proportion to any of the principal s independently of one another, so one room can be supplied with cold nd an adjacent one simultaneously warm air.

e kitchen is of unusual height and and fitted with probably as fine a ing plant as is to be found anywhere. m, gas, electricity, and coal fuel are mployed. The whole of the ceiling is , with a ventilating space over the e area. It is perforated by innumerable holes cast in removable panels, so that the entire ceiling can be periodically taken down for cleaning. From this false ceiling-space the air is drawn along a large duct to a fan (similar to those employed in the ventilation of a mine) fixed on the mezzanine floor. This fan is of sufficient power to change the whole of the air in the kitchen and surrounding rooms every $1\frac{1}{2}$ minutes. The air is delivered into a large duct which conducts it to the extreme top of the building. The smell of cooking is thus entirely avoided.

Each bedroom is separately ventilated by a trunk carrying vitiated air to the top of the building. Fresh air is introduced at the will of the occupant either from the warmed corridor or from adjacent areas. The lavatories, baths, and w.c.'s throughout the building are similarly ventilated by extract fans, which withdraw the air to the roof.

Hot Water Supplies.

As every bedroom has its own hot-water supply tap, and as there is more than liberal bath accommodation, the provision of hot water was one of the most difficult problems in the entire installation.

The supply to the hotel, and to every bedroom in it, is furnished by three very large calorifiers fixed in the sub-basement heater room, adjacent to the main boilers. The temperature of the water is automatically controlled by electrical valves. There are also two large storage cylinders fixed on the roof, holding 20,000 gallons of hot water. The hot water is circulated to the taps by natural gravity, accelerated, when necessary, by a pump. It is thus led to every bedroom and to the innumerable sinks, lavatories, and baths fixed in every part of the building.

Electric Power.

The most important section of the power is that required for driving the ventilating fans and lifts. The electric motor nevertheless plays an important part in the kitchen equipment, etc.; for example, there is a 4 h.p. motor driving a "Hall" refrigerator, an ice-making machine, an almond crusher, and a "whisk." In the French bakery there are a 2 h.p. motor-driven bacon-cutter and a mincing machine.

The refrigerating plant for the cold storage rooms is driven by a 18 h.p. motor with a brine circulating pump driven by a $2\frac{3}{4}$ h.p. motor. There are also a large number of buffing machines for boot-cleaning, driven electrically.

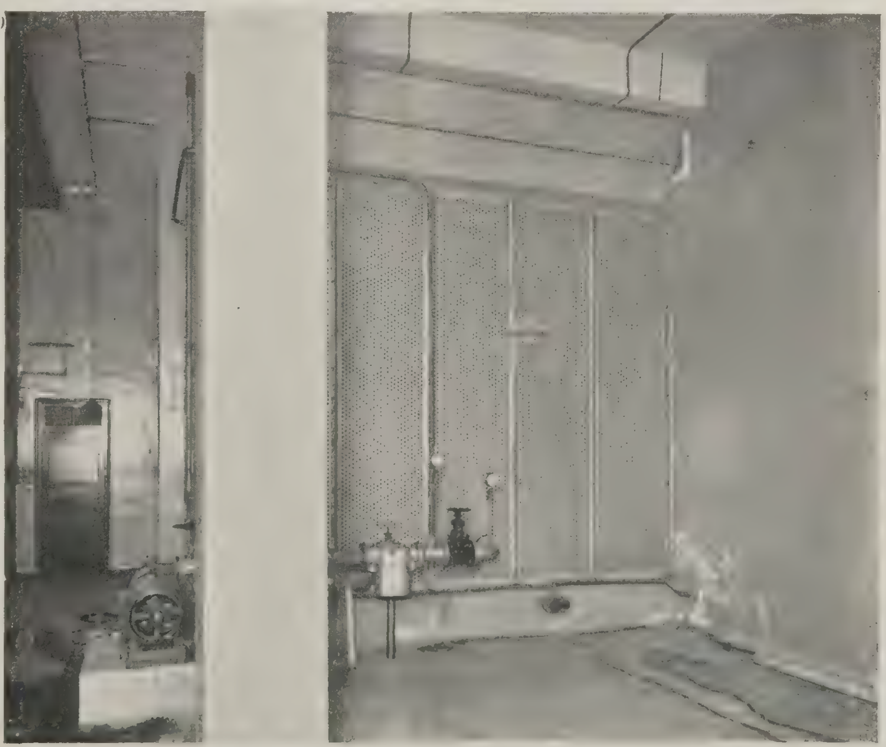
Electric Lighting.

For the lighting of the building some 6,000 Osram lamps have been installed, and the wiring has been laid out in two systems to comply with the L.C.C. regulations. The required number of lamps in all the public portions of the hotel are supplied from what is known as the "council main," which feeds two principal distribution boards. There are also two general lighting boards, from which a supply is given to the rest of the lamps in the building. Convenient control for all the bedroom lights is provided—a fact which will add materially to the comfort of hotel guests. Each room is provided with two lamps, either of which is controlled from a three-point switch at the bedside. A certain number of cross and corner corridor lights are supplied from the alternate one of the two distinct systems into which the lighting supply is divided. In this simple manner the important lights in corridors are rendered independent of the same general circuit which supplies bedrooms immediately adjoining those corridors. These special corridor lights are controlled by master switches at central points.

The general scheme of illumination is on the semi-direct system, and for this purpose a variety of designs of fittings have been installed. In the dome of the Rotunda Court a novel plan has been adopted of introducing opal bulls-eyes into the risers which support the glazing of the dome. Behind each opal is a 30-watt lamp. Around the dome cornice is a ring of lamps, which are concealed from view at the floor level, but which throw a considerable volume of light upwards into the dome.

Electric Lifts.

There are five electric passenger lifts, each constructed to carry a load of 15 cwt. at a speed of 300 ft. per minute, the height of travel varying from 85 ft. to 122 ft. 3 in. —this lift travelling from the basement to the roof. A signalling arrangement is em-



REGENT PALACE HOTEL: AIR-WASHING CHAMBER.

ployed, which is the latest device for this purpose. In each cage is fitted a flash-light annunciator signal fixture. When a passenger wishes to call a lift he pushes the button on the enclosure, and this illuminates in each cage a miniature lamp representing that particular floor, and also operates a small buzzer to call the attention of the operator to the signal. The first cage arriving at the floor from which the signal is given will stop and pick up the passenger, and upon leaving the floor will automatically extinguish the signal lamp in all cages. The signal is entirely automatic in its operation, and gives the operator no opportunity to extinguish it until he has reached or passed the floor from which the signal is given. The indicator in each cage shows to the operator the direction in which the passenger wishes to travel as well as the floor on which he is standing. On the ground floor in connection with each lift is provided a mechanical indicator with arrows working on a semi-circular dial, showing the position of each lift in the shaft.

There are also an electric luggage lift carrying a load of 15 cwt. at a speed of 300 ft. per minute, and two electric goods lifts of the same duty which travel from the basement to the ninth floor. In all there are thirty-two lifts, including service and restaurant lifts.

A most complete hydraulic vacuum cleaning equipment, which removes the dust from carpets, upholstery, etc., direct to the drain, has also been installed.

The heating, ventilating, and hot-water supply installation has been carried out by Messrs. J. Jeffreys and Co., Ltd., and the lift and vacuum-cleaning installation by Messrs. Waygood-Otis, Ltd.

PRESENTATION OF THE ROYAL GOLD MEDAL.

There was a large attendance of members of the Royal Institute of British Architects at the meeting on June 21, when the presentation of the Royal Gold Medal of the Society, which has been awarded to Mr. Frank Darling, of Toronto, was made. Mr. Ernest Newton, President of the Institute, occupied the chair, and among those present were Sir George Perley, Acting High Commissioner for Canada; the Hon. Thomas Mackenzie, High Commissioner for New Zealand; the Hon. W. P. Schreiner, High Commissioner for South Africa; Sir Thomas Jackson, Sir Ernest George, Sir Aston Webb, Sir T. Holderness, Mr. Frank Dicksee, Mr. Reginald Blomfield, and Mr. D. Macmaster, M.P.

The President said that Mr. Darling was unfortunately unable to come from Canada to receive the medal, but Sir George Perley had consented to represent him on this occasion. The Gold Medal was looked upon as the highest architectural honour which this country had in its power to confer, and for the first time in its history it was now given by the King, on the unanimous recommendation of the Institute, to an architect of the Dominion of Canada. He hoped that in the future it might be presented to other eminent architects of the Oversea Dominions. Mr. Darling, who was Canadian-born, but had worked in this country in the offices of Sir George Street and Sir Arthur Blomfield, had been the architect of many important buildings in Toronto, Winnipeg, and Montreal, and had built offices for the Canadian Bank of Commerce in nearly every town in Canada. It was peculiarly appropriate, perhaps, that they should have this opportunity of recognising the merits of a distinguished Canadian at a time when so many of his gallant countrymen in the battlefields were showing their magnificent qualities in the arts of war.

Sir George Perley, in responding, read a cable message from Mr. Darling to the President of the Institute, expressing his regret for his inability to leave Canada to be present on this occasion. In his message Mr. Darling said he regarded the bestowal of the medal as a signal honour to the profession of which he was a member and the country of which he was proud to be a citizen. He was a Canadian born and bred, and an Imperialist, and from the bottom of his heart he welcomed everything which tended to bring closer together the Mother Country and the Dominions. Nothing could better assist that great result than this gracious action on the part of the Institute.

A portrait of Mr. Frank Darling was given on page 186 of our issue of April 21, together with a biographical notice.

STEPNEY MUNICIPAL OFFICES COMPETITION: AWARDS.

The awards in this competition, in which Mr. Henry T. Hare, F.R.I.B.A., was assessor, are announced as follows:

1. Messrs. Briggs, Wolstenholme, and Thornely, Liverpool.
2. Mr. Frazer Grainger, Brixton.
3. Messrs. Ambrose Poynter George Wenyon, London.
4. Messrs. T. S. Derbyshire F. A. Collard, London.

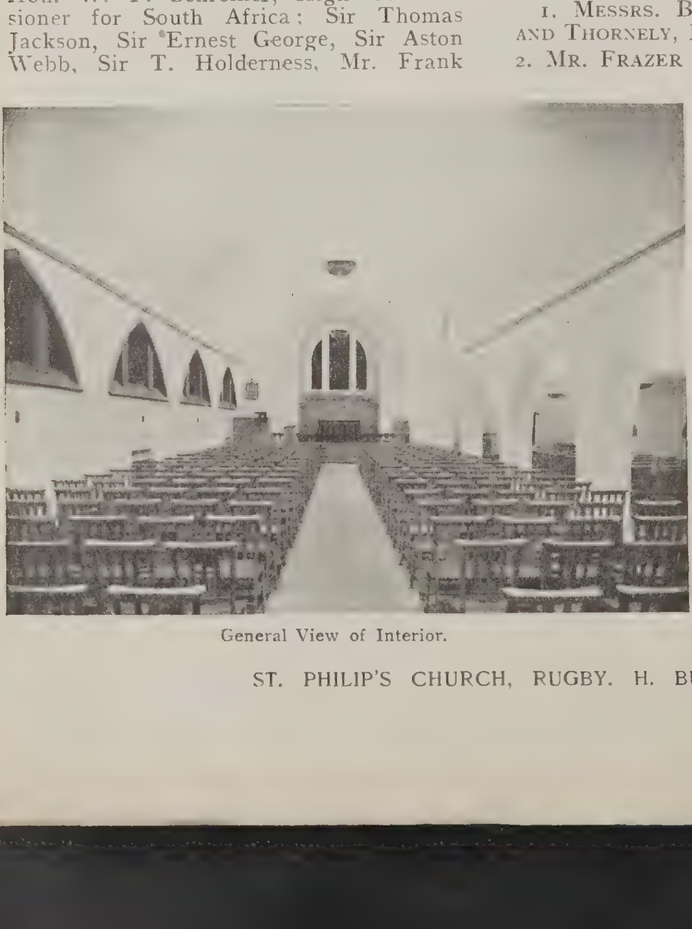
There were 170 sets of designs.

When the competition was arrar it was proposed to appoint as archi the author of the design placed first, fees to be in accordance with the R.I. scale; but, should a contract not be si within twelve months of the award, author was to receive a payment account of £300, and should the schem abandoned or indefinitely postponed was to receive a further payment of in full discharge, the drawings to bec the property of the council. The aut of the designs placed second, third, fourth were to receive premiums of £75, and £50 respectively. A site for building had been provisionally selecte Arbour Square, Stepney, but the sch is suspended owing to the war.

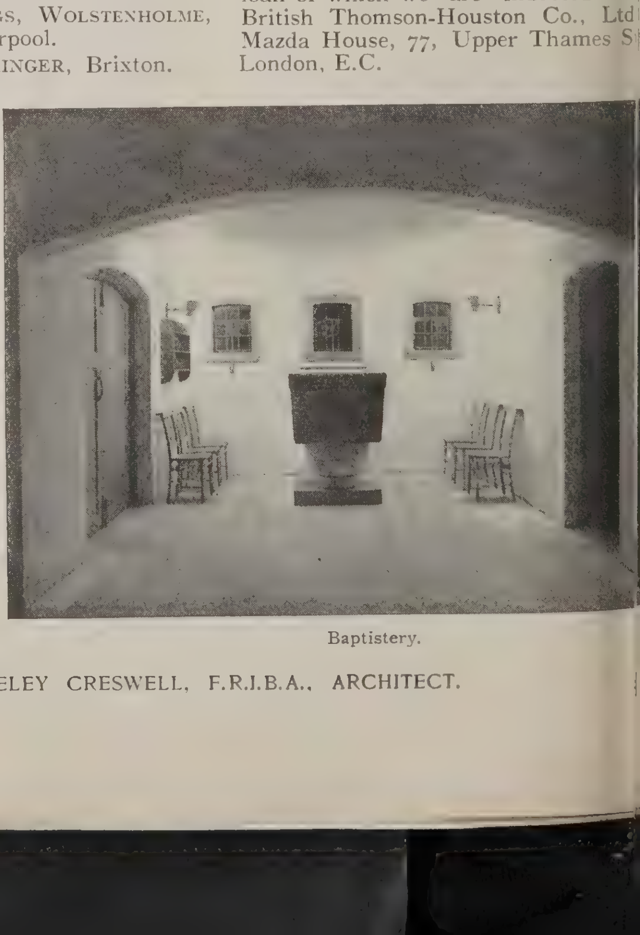
INDIRECT LIGHTING FOR CHURCHES.

Indirect lighting, which relies upon ceiling for its effect, is installed in a number of buildings in this country. think we are correct in stating, how that St. Philip's Church, Rugby, is first church in the United Kingdom lighted in this manner. The B. "Eye-Rest" system, with Mazda dr wire lamps, has been adopted, the of the fittings of hand-hammered having been designed by the architect, H. Bulkeley Creswell, F.R.I.B.A. Rugby.

St. Philip's is a mission church, an design has been evolved in an endea to use in a plain and straightforward such materials as were available. total length is 100 ft., the nave, of bays, having a width of 24 ft. and aisle 10 ft. The seating capacity o church is 400. At the west end the a small baptistery, and over it a galler the organ and choir. The interi plastered throughout with a rough su formed with a felt-faced float, and is with a plastered barrel carried on the side of trussed rafters. The B. "Eye-Rest" fittings will be noted in of the accompanying illustrations, fo loan of which we are indebted to British Thomson-Houston Co., Ltd Mazda House, 77, Upper Thames S London, E.C.

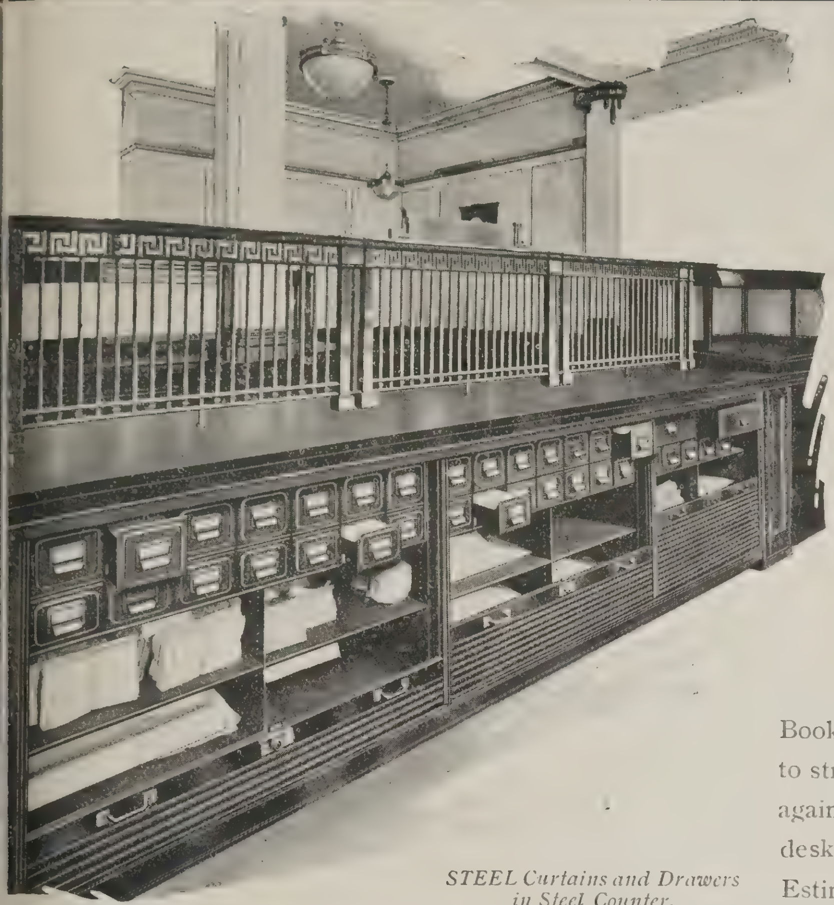


General View of Interior.



Baptistery.

ST. PHILIP'S CHURCH, RUGBY. H. BULKELEY CRESWELL, F.R.I.B.A., ARCHITECT.



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This shows you how the space at rear of counters

in a Banking room can be utilised to the best possible advantage. Note the compact effect—everything easily accessible, not an inch of space wasted. The Fittings are of steel. There are Cash Drawers and Card Index Drawers, and below these are adjustable steel shelves which are covered by push-down steel curtains. Pedestals can be fitted with plain openings or drawers of any kind to meet requirements.

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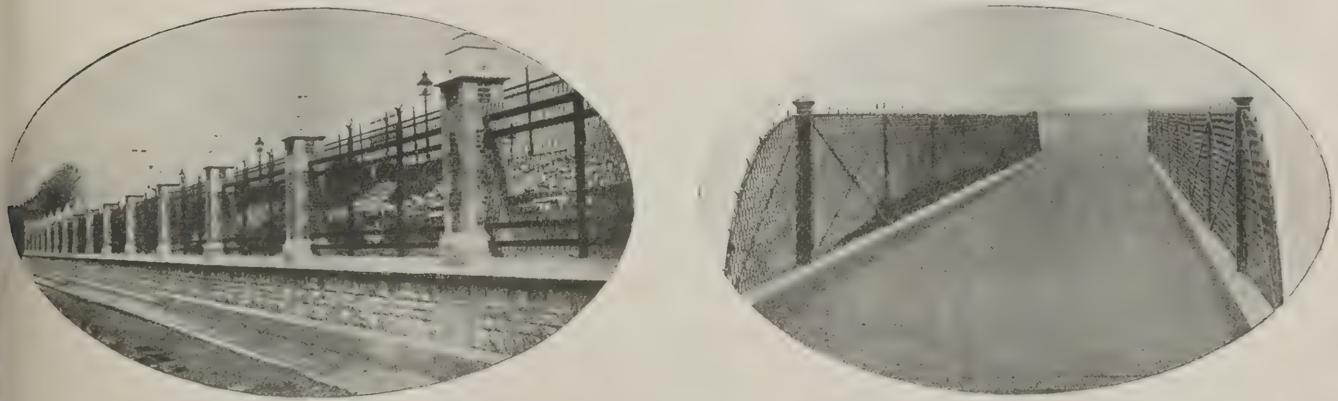

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SULPHUR IN AGGREGATES.

Sulphur has always been considered a dangerous element in aggregates, but it is a question of amount more than anything else. Coke breeze contains sulphur, and the amount varies according to the nature of the coal from which it is derived. I (writes Mr. Thomas Potter, in the June issue of "The Journal of the Society of Estate Clerks of Works") have never found any bad results from its use, and Sir Henry Tanner says he has used it for floors in connection with new Post Office buildings for years and had no complaint. Slag from iron ore is an excellent aggregate, but, as before stated, often contains a large amount of sulphur. Dr. Michaelis, in a paper read before the Institute of Civil Engineers, said that Yorkshire and Glasgow Siemens acid slag were particularly free from sulphur, but slag from the Midlands, Yorkshire, Cleveland, and South Wales blast furnaces contained from 1.86 to 2.05 per cent. of sulphur, and adds that engineers and chemists say that anything beyond 0.7 per cent. is injurious. But sulphur evaporates by exposure to the air, and this points to employing it only when taken from the vast slag heaps which are to be found near all smelting works, the accumulation of years.

The action of sulphur upon steel is serious, and its effect upon reinforcing bars and rods where it exists to any extent must be more or less dangerous. Experiments have proved that as little as 0.2 per cent. of sulphur caused corrosion of steel more or less rapid, according to the presence or absence of moisture.

Slag differs in composition in accordance with the locality and the nature of the process by which it is produced, and varies from time to time. In slag obtained from a given source it is easy to pick out samples of quite a different character and diversified colour. Some portions are of a bluish tint and glassy appearance, others of the texture of fine stone, others of coarser grain and encrusted with alkaline matter, and others, again, porous and friable throughout.

An authority on concrete once said at a meeting of the Concrete Institute, that the amount of sulphuric acid in the atmosphere is derived mainly if not entirely from the coal consumed in the locality. The standard in the matter of the amount of sulphur in the atmosphere is taken by chemists as unity at Valentia in Ireland, and compared with this it is fourteen times greater in Liverpool, sixteen times in Manchester, and twenty-six times in the Glasgow district. This means that there is twice as much sulphur in the coal in the Clyde valley as there is in the Lancashire coal, and assuming for this reason that coke breeze from the Clyde valley is prohibited for some special work, there is no control over the gasworks, which may change their coal supply at any time.

The use of aggregates in which sulphur exists to a considerable extent, if not absolutely dangerous, may approach near thereto. When slag is being crushed by a Marsden crusher the smell of sulphur is very perceptible, even after it has been exposed to the air for years, but I have never had a failure from its use. Failures assumed to be from sulphur in the slag have occurred, but it is quite possible they may have arisen from some other cause, and the sulphur came in as a very handy scapegoat. Strange to say, Mr. Hyatt, one of the earliest and most experienced practitioners, took out a patent for mixing sulphur with cement to improve its quality.

The most serious problem, however, is what condition will much of the reinforcement used in floors and roofs be in, in, say, a century? We have no reason to suppose that it will have corroded, but any material which is subject to corrosion or decay, and upon which great liability has been placed, we are apt to look upon with some suspicion when it is entirely out of sight.

A speaker at the Concrete Institute once said that a great authority on concrete assured him that he had seen a case in which a rolled steel joist was embedded in coke breeze concrete, and after a few years the concrete was cut open and there was no joist left, only the place where it had been, and some stains. This must be taken *cum grano salis;* it was probably an American yarn or originated in a case where some slight evidence of corrosion existed, and when the fact was transmitted from one to another it only required time and sufficient listeners for the joist to have vanished.

R.I.B.A.

Bradford Town Planning Competition.

The premiated designs in the recent competition for the replanning of streets in the central area of Bradford will be exhibited in the galleries of the Royal Institute of British Architects, 9, Conduit Street, W., for a fortnight, commencing on Monday, July 5, between the hours of ten and six. Admission free.

R.I.B.A. Examinations: Designs Approved for the Final.

The Board of Architectural Education announce that the designs submitted by the following Students have been approved:

SUBJECT XX.

(a) Façade for an Important Firm of Fine Art Publishers.

Brandon, C. J.
Bruce, J. C. C.
Carey, R. W.
Cottingham, G. R.
Day, N. F. C.
Duncan, R. A.
Evans, T. C.
Foote, A. A.
Foulkes, S. C.
George, B.
Graham, R. D.
Hemm, G.
Hull, V.
Hutton, L. D. H.
Jackman, F.
Kellock, A. D.
Lyne, D. R.
Munguia, G.
Owen, A. T.
Pennington, W. F.
Rayson, T.
Reixa, F.
Stevens, F. J.
Tranmer, F.
Tubbs, G. B.
Wilson, J.
Woodhouse, F. P. M.

(b) Detached Swimming Bath for a Boys' Public School.

Hall, R. B.
Holden, W.
Knight, S.
Middleton, V.
Roberts, E. W.
Tanner, A. S.
Vinden, G.

Regulations for Architectural Competitions.

A special general meeting of the R.I.B.A. will be held on Monday, July 5, 1915, when the chair will be taken at 8 p.m. precisely, for the following purpose: Chairman to move that the regulations for architectural competitions ("Kalendar," p. 476) be altered as follows: 1. The second paragraph to read: "Members of the Royal Institute of British Architects and of its allied societies are only permitted to take part in competitions in accordance with these regulations, which are intended to apply to all competitions other than private competitions instituted by private individuals or firms." 2. The footnote at the bottom of the first page [of the "Kalendar"] to be omitted.

New Church for Plymouth.

The Bishop of Exeter has received from an unknown benefactor at Bath or Bristol a gift of £2,000 towards a new church at Plymouth.

OBITUARY.

William W Miller.

We regret to announce the death,
June 21, of Mr. William W. Miller,
of 39, Victoria Street, S.W. Mr. Mi
who was sixty-seven years of age,
well-known to a large circle of archit
as a dealer in architectural and build
publications. For twenty-seven years
had been with Mr. Bumpus, but in l
years he carried on business on his
account.

Mr. W. Robinson.

Mr. William Robinson, who has die
Nottingham at the age of sixty-four,
a director of Messrs. W. Robinson, L
decorators' merchants, and also a dire
of Messrs. Rockleys, Ltd. He
been prominently identified with F
masonry. He held various offices, inc
ing that of Worshipful Master in
Newstead Lodge, and was also a mem
of St. Mary's Lodge and the Provin
Grand Lodge of Notts.

An Architect's Will.

Mr. Arthur Marshall, A.R.I.B.A.,
Lockington, Leicester, and of Nottingh
architect, who died February 25 last,
fifty-six years, left estate of the gross v
of £23,795, with net personalty £992.

A Builder's Will.

Mr. Joseph William Duffield, of Pa
Place Mansions, Kensington Court,
the Palace Works, Kensington, buil
who died on March 10, left estate va
at £14,318 gross, with net person
£2,619. He directs that the silver
and loving cup presented to him at
close of his term as churchwarden of
Mary Abbotts, Kensington, shall be off
to the South Kensington Museum,
having, as the will puts it, "made
necessary arrangements, as I trust,
my wife and family, I give" £500 to
vicar and churchwardens of St.
Abbotts for the repair of the outside fa
£100 to Moses Reed, his faithful w
man; £100 to his yard foreman; £20
the ten workmen who shall have bee
his employ the longest time; and to
London Benevolent Society of M
Builders any unpaid part of a pron
sum of £105.

The Heraldry of Canterbury Clois

At a meeting of the Society of
quaries held at Burlington House
June 24, Mr. Ralph Griffin read a p
on "The Heraldry in the Cloisters o
Cathedral Church at Canterbury,"
trated by several hundred photographs
a large number of lantern slides.
described how the rebuilding of the
at the close of the fourteenth century
led to the reconstruction of the clois
which contained no fewer than
armorial bosses. There were va
manuscripts describing the arms, th
Richard Scarlett in the British Mus
and that of Dr. Thorpe in the Soci
library, but the only printed descri
of them was that of Willement,
thought they were blazoned in their p
metals and colours, but this view was
wards combated by the Rev. Th
Streatfeild. A great deal of the
cussion on this point was now a matt
opinion, as there was no colour wha
left. Sir William St. John Hope, i
discussion which followed, asked wh
the Dean and Chapter would boldly f
the example at Westminster Abbey,
give the cloisters of Canterbury a thor
lime-washing from end to end to pre
them from the ravages of decay.

OLUNTEER ENGINEERS AT WORK.

n a recent Saturday afternoon two units of the Corps of
inteer Engineers, organised by General Sir O'Moore
igh, V.C., K.C.B., under the auspices of the C.A.V.T.C.,
in Hyde Park for joint parade and the execution of field
neering works on a practical scale.

ie Post Office Engineers' unit, under Commandant H. C.
ton, assembled near Lancaster Gate and marched to the
der Magazine, where they were joined by the National
rd Engineers' unit under Commander W. Noble Twelve-
. From the temporary headquarters at this point the
Office Engineers ran field telegraph and telephone lines to
Marble Arch and near Kensington Palace, with the co-
ation of a party of electricians detailed from the National
d Engineers, each installation having been completed at
ate of more than one mile an hour. While these operations
going on the National Guard Engineers, who were joined
small detachment from the Post Office unit, commenced to
a trestle bridge of 22 ft. span and 8 ft. in width across the
separating Hyde Park and Kensington Gardens. The
truction of the bridge occupied less than two hours and on
ompletion the structure was used for the passage of troops
the transport of material.

rticulars relative to membership in the National Guard
neers' unit may be obtained on application to the Hon.
tary, 195, Bedford Hill, S.W.

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The Active Service Committee of the A.A.

. H. Austen Hall, F.R.I.B.A., writes: "Will you permit
o call the attention of your readers to the work of the
e Service Committee of the Architectural Association, who
the names of 280 men on their books to whom parcels are
every week, as well as many hundreds of professional papers
magazines. Letters of thanks have been received from
men at home and in France, the Dardanelles, Malta,
, etc., which give abundant proof of the extremely useful
the committee are doing under the chairmanship of Mrs.
ice Webb.

uring the last three months no fewer than 1,069 parcels
been sent to architects in the field, each parcel containing
things as belts, bootlaces, shirts, vests, helmets, handker-
s, housewives, igniters, Keating's powder, mittens, socks,
es, soap, towels, boracic powder, writing wallets, candles,
dippers, footballs, mouth-organs, Japanese fiddles, stylo
chess, etc.

lso chocolate, cigarettes, tobacco, and tins of condensed
potted meat, sweets, sardines, etc.

s a result of an appeal in the building papers for contribu-
of cigarettes, several hundreds have been received, and the
nittee will be most grateful for further contributions, as the
nd is very great, and the quantity supplied by the Govern-
to the troops is not so large as formerly, and consequently
en are more dependent on those sent by friends.

ocks are also continually being asked for—and magazines
illustrated papers are much appreciated. The committee
great difficulty in supplying the demand for these, and
d gratefully welcome any sent to them—back numbers
ded.

onations received during March, April, and May amounted
2 17s. 10d. and any amount, however, small, will be wel-
d by the committee to enable them to carry on their work."

Red Cross Detachment.

further communication from Mr. Austen Hall states that
rchitectural Association has undertaken to form a Red
Voluntary Aid Detachment, with headquarters at 18,
n Street, Westminster. At least fifty men are required,
t is hoped that all those connected with the architectural
ssion who are not eligible for the Army, and not otherwise
g the country at the present time, will send in their names
e Secretary of the Association, from whom all further par-
rs may be obtained. A subscription of 2s. 6d. is asked
each member joining, to defray the cost of training equip-

e detachment will be made use of by the Red Cross Society
diately it is efficient. A short course of training is neces-
to obtain the Red Cross Society's certificate, and this
ing course will be commenced at once. It is therefore
sary that those who desire to join should send in their
s without delay, and at the same time state if they have
any experience in first-aid work, and if they hold any
icates. It is not expected that members of the detachment
give full time, but whatever time can be given to the work
e fully utilised.

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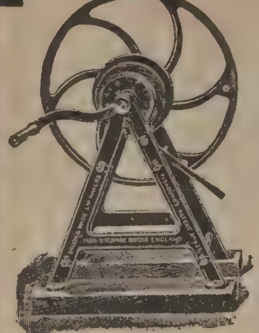

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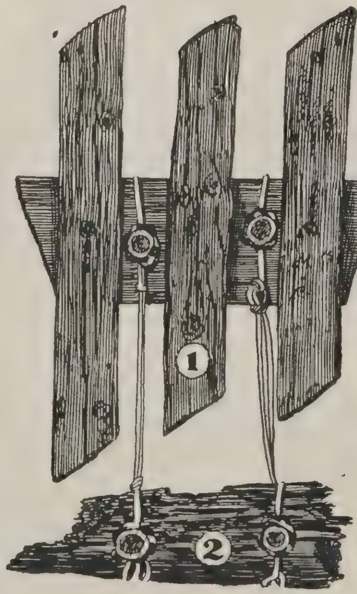

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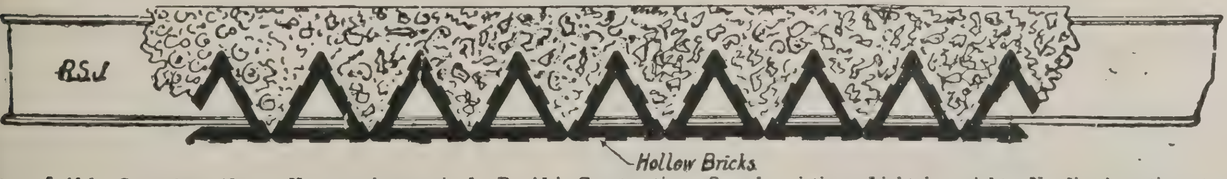

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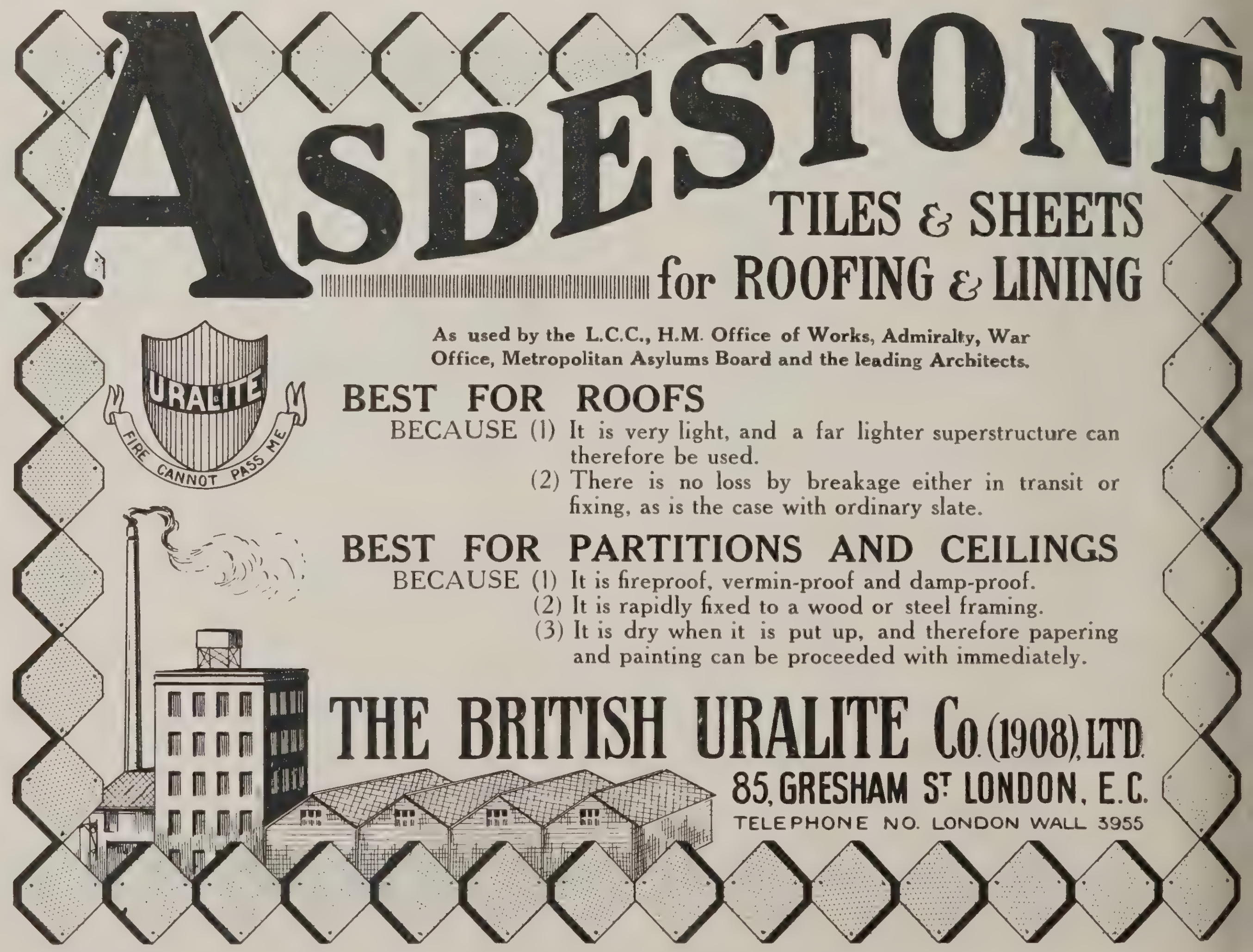
For Appointments (Wanted and Vacant), Competitions Open, Contracts Open, Drawings, Tracings, etc., Educational, Legal Notices, Miscellaneous, Property and Land Sales—See pages viii, x, xvi, xvii, xviii.



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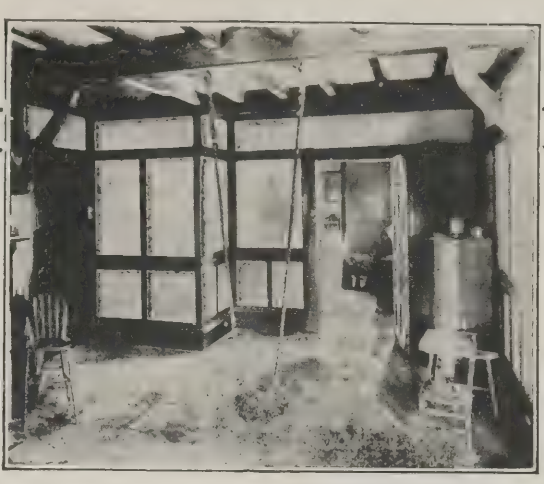

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BUILDING.

July 1.—**CHURCH. Batley Carr.**—Erection of a stone building and installation for electric light at Batley Carr Church. Particulars from Dr. Ward, Highbury, Batley Carr.

July 1-10.—**VERANDAH. Cardiff.**—Erection of verandah at Ely Lodge, near Cardiff, for the Guardians, according to specification, a copy of which, together with the form of tender, may be obtained from A. J. Harris, Clerk, Union Offices, Queen's Chambers, Cardiff. The Guardians' clerk of works will be in attendance to show persons intending to tender the work to be carried out at Ely Lodge on July 1 at 11 a.m.

July 2.—**REPAIRS. Mold.**—Repairs to the drill hall, Mold, for the Flintshire Territorial Force Association. Particulars from John H. Davies and Sons, Architects, 14, Newgate Street, Chester.

July 2.—**CONSTRUCTION. Aberbythich.**—Construction of works of water supply at Milo, Llandebie in the Parish of Llanfihangel Aberbythich, for the Llandilofawr R.D.C. Particulars from Evan Jones, Surveyor to the Council, Glancennen, Llandebie.

July 2.—**PLASTERING. Whitby.**—Plastering of the washhouse in cement, etc., at the Whitby Poor-Law Institution, for the Guardians. Particulars at the Institution.

July 2.—**HOUSE. Christon Bank (Northumberland).**—Erection of a two-storeyed dwelling-house at Christon Bank. The plans and specifications may be seen upon application to Mr. J. Stephenson, Embleton, and copies thereof at the office of M. Temple Wilson, Architect, Alnwick.

July 3. — **HOUSES. Wattstown (Glam.).**—Erection of ten semi-detached officials' houses at Wattstown, for the United National Colliery Co. Particulars from A. O. Evans, Williams and Evans, Architects, Pontypridd. Deposit £1 1s.

July 3.—**SCHOOL WORKS. Wakefield.**—Painters' work at East Ardsley, Hill Top, Stourton, Thorpe, Lingwell Gate Council schools; Builders' work at East Ardsley, Hill Top, Westerton, Rothwell, Carlton, Robin Hood, Thorpe, Outwood, Lingwell Gate, Wrenthorpe, Stourton, and Crofton Council schools; joiners' work at East Ardsley, Westerton, Wrenthorpe, and Crofton Council schools; Ashphalters' work at Lofthouse Gate and Stourton Council schools; Plumbers' work at Carlton Council school, for the West Riding Education Committee. Particulars from A. Angus, West Riding Education Offices, Wakefield.

July 5.—**HOSPITAL. Ely.**—Erection of an Isolation Hospital on St. John's Road, Ely, for the Ely U. and R.D.C. Particulars from the City Surveyor's Office, Fore Hill, Ely. Deposit £1 1s.

July 5.—**SHED. Ulverston.**—Erection of a new shed at Low Mill Tannery, Ulverston, for Messrs. Randall and Porter, Ltd. Particulars from J. W. Grundy and Son, Architects and Surveyors, Ulverston.

July 5.—**SCHOOL WORKS. Dover, Etc.**—Execution of the following works, for the Kent Education Committee, viz.: County school for boys, St. Hilda's, Dover, summer repairs (local secretary, Mr. R. E. Knocker, 69, Castle Street, Dover); county school, Ramsgate, summer repairs and improvements (local secretary, Mr. R. K. Gooch, 5, Clarendon Gardens, Ramsgate); school of art, Margate, summer repairs (local secretary, E. Brooke, Town Clerk, Margate). Specifications, plans, etc., prepared by the committee's architect, Mr. W. H. Robinson, M.S.A., can be seen and further information obtained, at the offices of the respective correspondents named, at the offices of the Committee, Sessions House, Maidstone, or at the respective school premises during sc
hours until the time appointed for
delivery of the tenders. Tenders, on
forms which will be supplied on appl
tion, must be addressed to the Chairr
of the Buildings Sub-Committee, Sess
House, Maidstone, in a sealed envel
endorsed with the name of the school
cerned and the description "Tender,"
as to be delivered by noon on July 5.

July 5.—**WORKS. Sellindge**
Dover.—Execution of the following w
at the premises named, for the Kent
cation Committee, viz.: Sellindge Cou
school, summer repairs (correspond
Mr. W. J. Spicer, Technical Institute,
ford); county school for girls, Do
summer repairs (local secretary, Mr.
E. Knocker, 69, Castle Street, Do
Specifications, plans, etc., prepared by
committee's architect, Mr. W. H. Ro
son, M.S.A., can be seen and further
formation obtained at the offices of
respective Correspondents named, at
offices of the Committee, Sessions Ho
Maidstone, or at the respective sc
premises during school hours, on
after June 21, until the time appoi
for the delivery of the tenders. Ten
on the forms which will be supplie
application, must be addressed to
Chairman of the Buildings Sub-C
mittee, Sessions House, Maidstone,
sealed envelope, endorsed with the n
of the school concerned and the descri
"Tender," so as to be delivered by
on July 5.

July 5.—**REPAIRS. Chatham.**—
provements to window lighting requir
be carried out at the technical insti

Contracts continued on page x.

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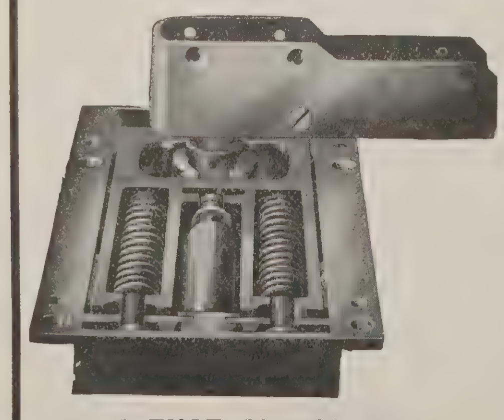

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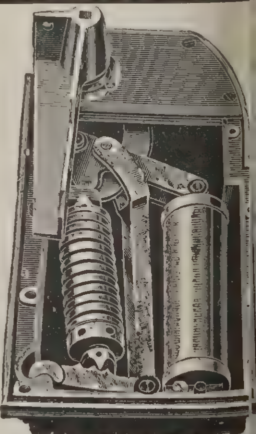

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Chatham, for the Kent Education Committee. Specification, prepared by the Committee's Architect, W. H. Robinson, M.S.A., Sessions House, Maidstone, Kent, can be seen and further information obtained at the offices of the correspondent, local secretary, Mr. R. L. Wills, 2, Military Road, Chatham; at the offices of the Committee, Sessions House, Maidstone, Kent; or at the school premises during school hours, until the time appointed for the delivery of the tenders. Tenders, on the form to be obtained on application, must be addressed to the Chairman of the Buildings Sub-Committee, Sessions House, Maidstone, in a sealed envelope, endorsed " Tender for Summer Repairs at the Technical Institute, Chatham," and must be forwarded so as to reach him by noon on July 5.

July 5.—**REPAIRS. Ripple (Dover).**—Execution of summer repairs required to be carried out at the Ripple Council school, for the Kent Education Committee. The specification, prepared by the committee's architect, Mr. W. H. Robinson, M.S.A., Sessions House, Maidstone, Kent, can be seen and further information obtained at the offices of the correspondent, Mr. F. S. Cloke, Sandwich, Kent; at the offices of the Committee, Sessions House, Maidstone, Kent; or at the school premises during the school hours, until the time appointed for the delivery of the tenders. Tenders, on the form to be obtained on application, must be addressed to the Chairman of the Buildings Sub-Committee, Sessions House, Maidstone, in a sealed envelope, endorsed " Tender for Summer Repairs at Ripple Council School," and must be forwarded so as to reach him by noon on July 5.

July 6.—**ALTERATIONS. Hadleigh, Essex.**—Altering and decorating the premises known as Homeleigh, George Street, Hadleigh, in the preparation of same as a cottage hospital, for the Committee of the Hadleigh and District Cottage Hospital. Particulars from C. Dudley Bright, Polstead Heath, Polstead, Colchester, by appointment.

July 7.—**SCHOOL WORKS. Bedford.**—The Bedfordshire Education Committee have under consideration the question of renovation works (chiefly external painting and repairs, etc.), at various Council schools, and persons desirous of sending in tenders are requested to apply to R. K. Ellison, Surveyor of School Buildings, Shire Hall, Bedford, for further particulars.

July 7.—**CARTSHEDS, ETC. Dorset.**—Erection of cowstalls, cartsheds, piggeries, etc., at Winterbourne Zelston Farm, for the Dorset C.C. Particulars from T. B. Jeffs, County Land Agent, Small Holdings Dept., County Offices, Dorchester.

July 8.—**ALTERATIONS. Wrexham.**—Works for the Corporation: Redecorating Corporation Cottage, Holt Road; redecorating cemetery lodge, painting sheds, etc., Smithfield; alterations to offices at Guildhall. Particulars from J. England, Borough Engineer, Willow Road.

No Date.—**ALTERATION. Wigton.**—Work of adapting an existing building in Wigton to the purposes of a cinema picture palace, to be completed for opening on August 2. Builders, joiners, plasterers, etc., intending to tender must forward their names at once to the Architect, John J. Davison, High Street, Wigton.

No Date.—**HOUSES. Scotland.**—Erection of several houses and steadings in connection with the Small Holdings Scheme at Sark Tower, near Gretna. Particulars from H. M. Conacher, Secretary, Board of Agriculture for Scotland.

No Date.—**REROOFING. Pontgarreg.**—Reroofing the classroom at the Pontgarreg Council school, for the Cardigan County Education Committee. Particulars as to time and place of sending in estimates can be seen in charge of the Head Teacher, or at the office of G. D. Lewis, County Architect, Aberystwyth.

No Date.— **EXTENSIONS, ETC. Askern.**—Extensions and conversion of two houses into shops at Askern. Plans and specification may be seen at the office of P. Robinson, F.R.I.B.A., Hall Gate Chambers, Doncaster.

No Date. — **SLATING. Morley.**—Slating the roof of the quarantine block at Bruntcliffe Hospital, for the Health Committee. Particulars may be obtained on application to F. Turner, B.Sc., A.M.I.C.E., Borough Engineer and Surveyor, Town Hall, Morley.

ELECTRICAL.

July 1.—**PLANT. Halifax.**—Supply of the following plant required in their electricity department, for the Tramways and Electricity Committee — viz.: (Contract No. 15) one 5,000-kw. turbo-alternator, complete with condenser; (16) two natural draught chimney-type cooling towers; (17) one water-tube boiler, superheater and mechanical stokers. Particulars from W. M. Rogerson, M.I.E.E., Borough Electrical Engineer, Electricity Works, Foundry Street, Halifax. Deposit £10.

July 5-19.—**PLANT. Erith.**—Supply, delivery and erection on site complete of the following plant, for the Erith U.D.C.: (Section A) one water-tube boiler, with superheater, economiser, automatic stoker, steel chimney, induced-draught plant, steam valve, steam pipes and all auxiliaries; (B) one 2,000-kw. high-pressure turbo-alternator, with condensing plant, switchgear and all accessories. Particulars from the Engineer and Manager, Walnut Tree Road, Erith. Deposit £1 1s.

ENGINEERING.

July 1.—**BRIDGE REPAIRS. Kinnerley.**—For the repairs of the New Cut Bridge, in Edgerley township, parish of Kinnerley, for the Edgerley Argae Committee. Particulars from Mr. J. T. Bather, 9, The Square, Shrewsbury; from Mr. A. Bevan, The Mount, Kinnerley; or Mr. J. Phillips, the Royal Hill Inn, Kinnerley.

July 2.—**WATER-SUPPLY WORKS. Llandebie.**—For the construction of works of water supply at Milo, Llandebie, in the parish of Llanfihangel Aberbythich, for the Llandilofawr R.D.C. Particulars from E. Jones, Surveyor to the Council, Glancennen, Llandebie.

July 5.—**WEIGHING MACHINES. Pontypridd.**—Testing, repair and maintenance of a number of weighing machines used in connection with their various departments, for the Pontypridd U.D.C. Particulars of the machines and form of tender can be obtained on application to J. C. Jones, Clerk, Municipal Buildings, Pontypridd.

July 6.—**WATER MAINS. Wither sea.**—For the Withernsea U.D.C., viz Supply and delivery of 6-in., 4-in., a 3-in. cast-iron socket pipes and speci castings—total length about 4¾ mile supply and delivery of sluice valves; carta of pipes, trenchwork and laying and joir ing of water mains. The drawings a specification may be seen upon applicati at the office of Mr. J. B. Kirton, Engine Council Offices, Withernsea, and a copy specification, schedules and tender form any particular section obtained on pa ment of a deposit of £2 2s.

No Date.—**STEEL VIADUCTS. Lo don, S.W.**—Supply of three steel viadu for the Royal Siamese State Railwa (Northern Line). Particulars can obtained against payment of 15s. from t Siamese Legation, 23, Ashburn Pla London, S.W.

MISCELLANEOUS.

July 5.—**LIME, ETC. Atherton.**—Supply during twelve months to June 1916, of lime (best Buxton hand-picke jute press cloth, green copperas, for t Leigh and Atherton Joint Sewerage Boa Particulars from Mr. D. Ledson, Sewa Works, Leigh.

July 5.—**WELL. Dundalk.**—Sinki a well and erecting a pump at Courtba for the Dundalk R.D.C. in accorda with specification prepared by Mr. Cah C.E., which can be seen at his office or the Council Offices at all reasonable tim Sealed tenders, addressed the Presidi Chairman of the Council, giving names of two solvent sureties willing join in a joint and several bond for £50 the performance of work, to be lodged w P. R. Finigan, Clerk, Workhouse, up 11 a.m. on July 5.

No Date.—**PIT. Treherbert.**—Sinki of No. 3 pit, Fernhill Collieries, from 6 ft. seam to the Gellideg seam (size shaft, 17 ft. 6 in. by 11 ft. 6 in.), for Fernhill Collieries, Ltd., Treherbert. P ticulars, apply to the Fernhill Collieri Ltd., Treherbert, Glamorgan.

Late Contracts on page xviii.

Tenders.

Information from accredited sources sho be sent to " The Editor," at latest by noon Saturday if intended for publication in following Wednesday's issue. Results Tenders cannot be accepted unless they con the name of the Architect or Surveyor for work.

Heathfield.—For works in connection the Heathfield hospital tuberculosis sche for the Corporation. Mr. J. Young, A.M.I. Engineer. Accepted tenders:—

M. McNinch, Robsland Avenue, builder	£1,742	4
J. and D. Meikle, 44, Main Street, Carpenters	194	0
W. Auld and Sons, 70, Sandgate Street, Slaters and Plasterers	169	0
M. Glen, Boston Cottage, Somerset Road	78	8
W. Baillie and Sons, 89, High Street	83	15
W. Auld and Sons, Electricians	57	0

Woolwich.—Extension of sub-station. ders for building works:—

Charles Wall, Limited, Chelsea	£2,259	0
Y. J. Lovell and Son, Gerrard's Cross	1,867	0
J. Marsland and Sons, Walworth	1,685	0
J. and C. Bowyer, Limited, Upper Norwood	1,646	2
A. Roberts and Co., Limited	1,622	0
Thomas and Edge, Woolwich	1,520	0
T. D. Leng,* Czar Street, Deptford	£1,423	0

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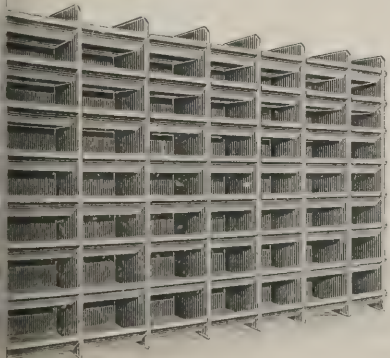

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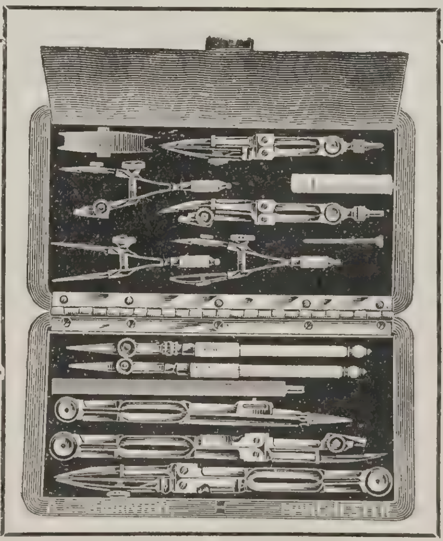

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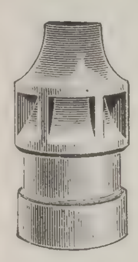

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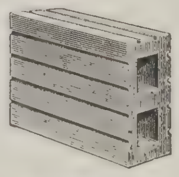

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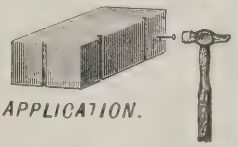

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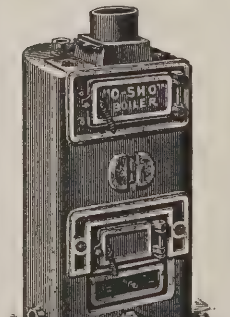

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PAINTING.

July 1.—**PAINTING. Sowerby Bridge.**—Painting, etc., Sowerby Bridge New Road Council school, for the Education Committee. Particulars from Mr. F. J. Macdonald, Education Offices, Sowerby Bridge.

July 3.—**PAINTING. Kirkcaldy.**—Inside painter work at fever hospital, Dunnikier Road. Copies of the specification can be obtained at Burgh Surveyor's Office. Also for removing about 700 cubic yards of excavations at new sanatorium, for the Corporation. Particulars at Burgh Surveyor's Office.

July 3.—**PAINTING, ETC. Huddersfield.**—Painting, etc., required at the Deanhouse Institution, Thongsbridge, for the Guardians of Huddersfield Union. Particulars from T. W. Armitage, Clerk, Union Offices, Ramsden Street, Huddersfield.

July 5.—**BRIDGES, ETC. Congleton.**—Painting and decorating of the Jubilee Pavilion, Bridges, etc., in the Public Park, for the Borough of Congleton. Particulars from J. H. Walters, Borough Surveyor, Congleton.

July 5. — **COLOUR-WASHING. Merthyr Tydfil.**—Colour-washing work in various schools of the committee during the ensuing summer vacation, for the Merthyr Tydfil Education Committee. Particulars may be obtained on application to the Borough Architect, Town Hall.

July 5. — **SCHOOL. Ystalyfera.** — Painting and colouring Ystalyfera Intermediate School. Particulars from W. L. Morgan, Clerk to the Governors, Ystalyfera, Wales.

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ROADS & CARTAGE.

July 3.—**WOOD PAVING. Sheffield.**—Laying of about 1,900 yards of creosoted wood paving, the price to include seven years' free maintenance, for the City Council. Particulars from W. J. Hadfield, City Surveyor, Town Hall, Sheffield. Deposit 10s. All applications for and correspondence relating to tender forms should be addressed to the City Surveyor's Office. Tenders enclosed in official envelope provided, and accompanied by samples of the wood blocks proposed to be used, addressed to the Chairman of the Highway and Sewage Committee, to be delivered at the City Surveyor's Office by July 3.

MISCELLANEOUS.

July 14.—**PUMPING OUT. Merton.**—Pumping out a pond containing approximately 6,000,000 gallons of water, for the Merton and Morden U.D.C. Particulars relating to the site, etc., can be obtained from the Council's Sanitary Inspector any weekday between 9.30 a.m. and 10.30 a.m.

August 2. — **WAR DEPARTMENT CONTRACTS. Chatham.**—Triennial contracts, from August 23, 1915, in the following engineer districts and sub-districts; Eastern Command — Chatham, Gravesend Sub-District; Officer Commanding, Royal Engineer; Royal Engineer Office, Inner Lines, Chatham. Forms of tender, conditions of contract, schedule of prices and all necessary information may be obtained on application to above officer, by letter or in person, between 10 a.m. and 4 p.m. (Saturdays, 1 p.m.). Tenders are to be delivered or forwarded to the Director of Army Contracts, War Office, Whitehall, London, S.W., by 10 a.m. on August 2.

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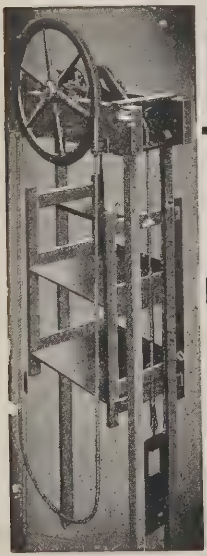

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